APR. 86
No. 6372

JVC Service Manual

REMOTE CONTROL UNIT
(and CAMERA ADAPTER)

MODEL RS-500

CAMERA CABLE
MODEL VC-544/545

MC-Service

VICTOR COMPANY OF JAPAN, LIMITED

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

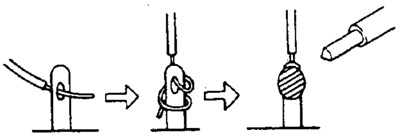


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

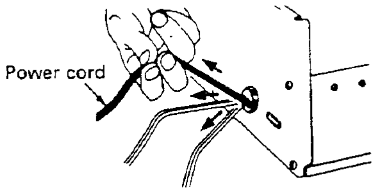


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

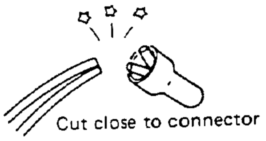


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

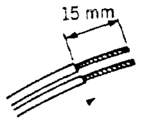


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

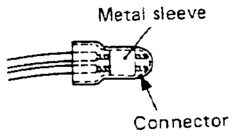


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

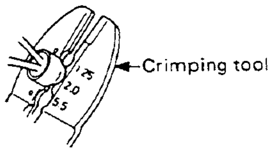


Fig. 6

(5) Check the four points noted in Fig. 7.

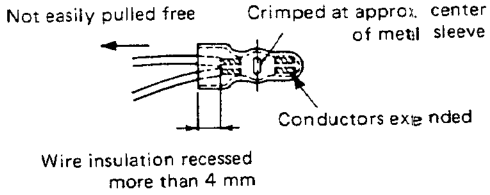

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

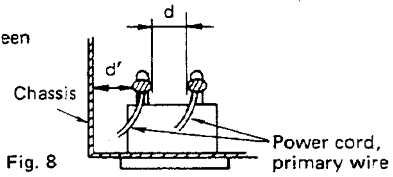


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

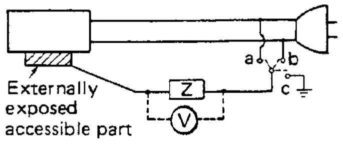


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

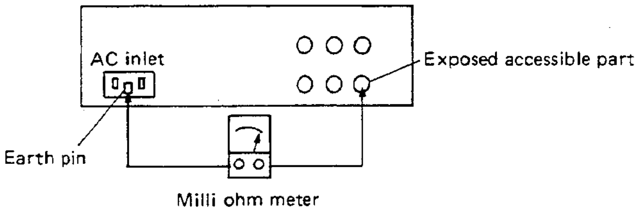


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	—	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

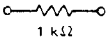
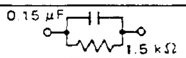
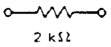
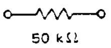
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	 1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	 0.15 μF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	 2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		 50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

JVC Instructions

REMOTE CONTROL UNIT
RS-500

RS-500 REMOTE CONTROL UNIT
JVC
FUNCTION LOCK
CABLE
PHASE
BLACK
GAIN
SHIFT
IRIS
AUTO
MEMO
TALLY
POWER
ON
OFF
INTERCOM
PRIVATE
COMMON
CALL
CONTOUR BARS
TEST OUTPUT
MASTER BLACK

For Customer Use:
Enter below the Serial No. which is located on the bottom of the cabinet. Retain this information for future reference.

Model No. RS-500

Serial No.

The instructions are given in three languages:
  English from page 1 to 17
  German from page 18 to 33
  French from page 34 to 49

Bedienungsanleitung in drei Sprachen:

Englisch:	Seite 1 bis 17
Deutsch:	Seite 18 bis 33
Französisch:	Seite 34 bis 49

Les explications techniques sont données en trois langues:

Anglais,	page 1 à 17
Allemand,	page 18 à 33
Français,	page 34 à 49

Thank you for purchasing the JVC RS-500 Remote Control Unit. This versatile unit is designed especially for studio video systems. Recording video productions with a mobile van or in the studio is possible using this remote control unit in combination with a JVC KY-950/KY-900/KY-310 color video camera.

To gain maximum benefit from the use of the RS-500, it is recommended that you study this booklet carefully.

Due to design modifications, the servicing procedures and data given in this manual are subject to possible change without prior notice.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD,
DO NOT EXPOSE THIS UNIT TO RAIN
OR MOISTURE.

Warning Notice
FOR YOUR SAFETY

To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively grounded through the normal household wiring.
Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth ground. Wrongly wired extension cords are a major couse of fatalities.
The fact that the equipment operates satisfactorily does not imply that the power point is properly grounded and that the installation is completely safe. For your safety, if in any doubt about the correct grounding of the power point, consult a qualified electrician.

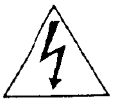
CAUTION!
CHECK YOUR LINE VOLTAGE

The RS-500 may be preset for a line voltage of 100 V, 120 V, 220 V or 240 V. Before inserting the power plug, check this setting to see that it corresponds with the line voltage in your area.
If not sure, adjust the voltage selector to the proper setting before operating the equipment.
The voltage selector is located on the rear panel.
Simply insert a screwdriver into the voltage selector and turn to adequate voltage.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING – THIS APPLIANCE MUST BE EARTHED
IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

GREEN-AND-YELLOW:	EARTH
BLUE:	NEUTRAL
BROWN:	LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows. The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN-AND-YELLOW. The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

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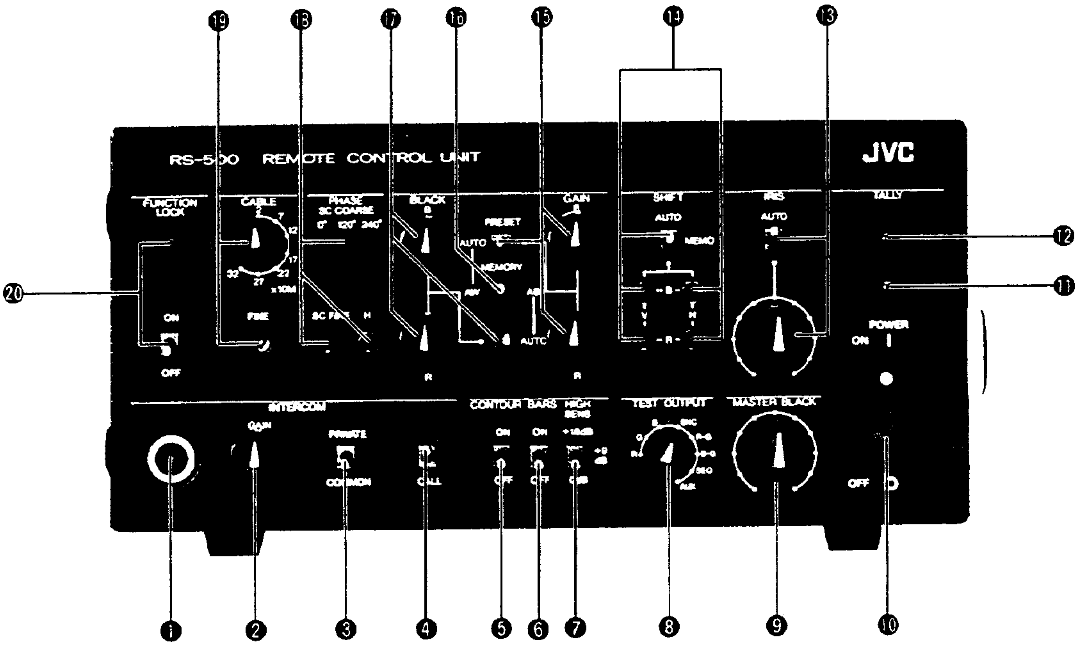
2. Controls, Connectors and Indicators 3
3. Preparations 6
4. Connections 8
5. Operations 10
6. Additional Facilities 13
7. Optional Camera Cables 16
8. Troubleshooting 16
9. Specifications 17

1. FEATURES

- **Compact and light weight**
  The RS-500 is easy to carry outdoors and takes up so little space that two can be mounted in one EIA rack, making it ideal for use in small video vans.
- **Remote control up to 320 m (1,050 ft)**
  The cable connecting the camera and the remote control unit can be extended up to 320 m (1,050 ft). Even at such a long distance, the RS-500 is still able to supply power to the camera with no other power supply being necessary.
- **Built-in genlock facility**
  External genlocking is possible with either composite video or black burst signal. SC phase and H phase are adjustable from the front panel of the unit.
- **Serial data command system**
  With its microprocessor and 14-conductor cable, a variety of remote control operations can be performed.
- **Various output systems**
  The output terminals accept the connection of composite video signals, RGB signals, test signals, waveform monitoring signals and audio signals.

2. CONTROLS, CONNECTORS AND INDICATORS

2-1 REMOTE CONTROL UNIT (MAIN UNIT)
– FRONT PANEL –


⑲
⑱
⑰
⑯
⑮
⑭
⑬
⑫
⑪
⑳
RS-500 REMOTE CONTROL UNIT
JVC
FUNCTION LOCK
ON
OFF
CABLE
2
7
12
17
22
27
32
x10M
FINE
PHASE
SC COARSE
0° 120° 240°
SC FINE
H
BLACK
B
R
PRESET
AUTO
MEMORY
AW
GAIN
B
R
ABC
AUTO
SHIFT
AUTO
MEMO
B
R
V
H
IRIS
AUTO
TALLY
POWER
ON
OFF
INTERCOM
GAIN
PRIVATE
COMMON
CALL
CONTOUR
BARS
HIGH SENS
ON
OFF
+18dB
+9dB
0dB
TEST OUTPUT
R
G
B
ENC
R-G
B-G
SEQ
AUX
MASTER BLACK
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩

① **INTERCOM HEADSET jack**
For connection of an intercom headset.
Communication is possible between the operator of this unit and the KY-950 (KY-900/KY-310) camera. See page 13.

② **Intercom GAIN control**
For adjustment of the intercom sound level.

③ **Intercom mode selector**

PRIVATE: For communication between this unit and the connected camera only.
COMMON: For communication with the whole intercom system including the connected camera.

④ **CALL switch**
While this non-locking switch is depressed, the tally lamp on the connected camera flickers: This is used to warn the camera operator.

⑤ **CONTOUR switch**
For switching ON/OFF the contour corrector signal of the connected camera.

⑥ **BARS switch**
For switching between the color bar and camera signals.

⑦ **HIGH SENS switch**
The "0 dB" position corresponds to normal sensitivity: the sensitivity can be increased to 3 times (+9 dB) and 8 times (+18 dB) the normal value.

⑧ **TEST OUTPUT selector switch**
For selecting the output from the TEST output terminal on the RS-500 rear panel.

R : Only R ch video signal is output.
G : Only G ch video signal is output.
B : Only B ch video signal is output.
ENC : Encoded composite video signal (VBS) is output.
R-G : R signal and negative G signal are output.
B-G : B signal and negative G signal are output.
SEQ : R signal, G signal and B signal are switched for every line and output in sequence.
AUX : The signal input to the AUX terminal on the RS-500 rear panel is output.

⑨ **MASTER BLACK level control**
For varying the black level (set-up level) of the camera.

⑩ **POWER switch**

⑪ **POWER indicator**
The LED lights when the power is switched ON.

⑫ **TALLY indicator**
The LED lights when a rated tally signal is applied.

⑬ **IRIS controls**
For the control of the aperture of the connected camera.

AUTO: When the AUTO/MANU switch is in this position, the iris is in the auto iris mode.
MANU: With the switch in this position, the iris can be controlled manually with the control below the switch.

⑭ REGISTRATION SHIFT controls

The mode switch has three positions one of which (the AUTO position) is non-locking.

AUTO : When the switch is pressed upwards, registration shifting is performed automatically by the auto-shift registration circuit in the camera.

MEMO : With the switch in this position, the data obtained by the above auto-shift operation is stored in memory.

MANU: With the switch in this position, shifting adjustment can be performed with the controls below the switch; H and V shift controls are provided for each of the B and R channels.

⑮ WHITE BALANCE mode switch and B/R GAIN controls

The mode switch has three positions and is used to select the white balance adjustment mode of the camera.

AUTO : For the white balance obtained by the auto white balance adjustment performed with ⑯.

PRESET: For using the white balance preset with the camera (3200 K).

MANU: The gain can be controlled manually with the B and R GAIN controls on the right.

⑯ AUTO WHITE/AUTO BLACK switch

This is a non-locking switch (going back to the center when released) and has three positions for activating the auto white and auto black circuitry of the camera.

AW : When the switch is pressed to this side, the auto white balance circuit of camera is operated.

AB : When the switch is pressed to this side, the auto black circuit of camera is operated.

The switch is normally in its mechanical center position so the data from the above automatic adjustments are held in memory.

Note: For details of operation and conditions for the auto white and black circuitry, see the instructions provided with the camera.

⑰ BLACK BALANCE mode switch and B/R BLACK level controls

The mode switch has two positions and is used to select the mode of camera black balance adjustment.

AUTO : For the black balance obtained by the auto black balance adjustment performed with ⑯ .

MANU: The black balance can be controlled manually with the B and R BLACK controls on the left.

⑱ PHASE controls

This section allows the phase of the horizontal sync pulse and subcarrier of the composite video signal (VBS) output from RS-500 to be varied, according to the reference signal (BB or VBS) input from the GENLOCK terminal on the RS-500 rear panel.

SC COARSE: For coarse adjustment of SC phase in three steps, 0° – 120° – 240°.

SC FINE : For fine, continuous adjustment of SC phase.

H : For adjustment of H phase.

⑲ CABLE compensation controls

The main control allows compensation of the attenuation of the video signal due to the length of the camera cable; 20 m (65 ft), 70 m (230 ft), 120 m (390 ft), 170 m (555 ft), 220 m (720 ft), 270 m (885 ft) or 320 m (1,050 ft).

The FINE control is used for fine adjustment.

⑳ FUNCTION LOCK switch

When this switch is set to ON, the camera control functions on the RS-500 front panel are disabled. This is to prevent disturbing the optimum settings made on the camera by careless handling. For details, see page 15.

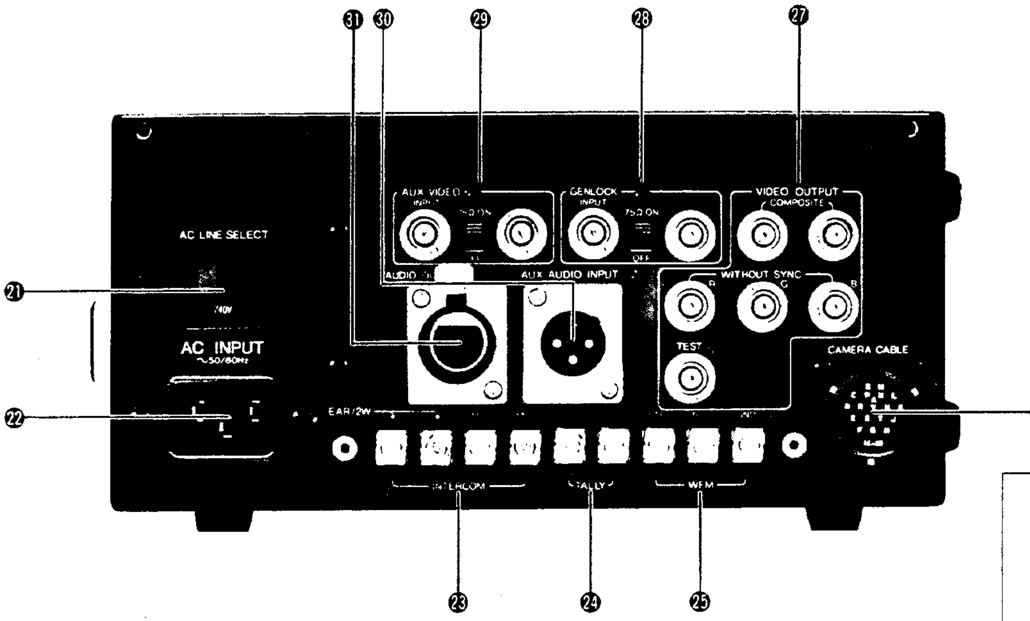
* * *

Precaution before use

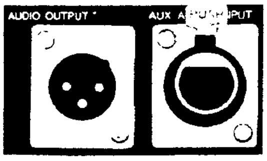
Before operating the RS-500, set the switches on the camera as follows. After setting them, be careful not to touch the switches accidentally.

AUTO SHIFT switch	MEMORY
Operation mode select switch	CAMERA ON
HI-SENS switch	0 dB
IRIS switch	NORMAL
WHITE BALANCE switch	AUTO
BARS switch	OFF
IRIS switch (lens)	AUTO

2-2. REMOTE CONTROL UNIT (MAIN UNIT)
— REAR PANEL —



Note: This picture shows the PAL version.



NTSC version

㉑ **AC LINE voltage selector**
Be sure to set the switch to correspond to your local voltage; if it is set incorrectly, normal operation will not be possible and internal components may sometimes be damaged.

㉒ **AC INPUT socket**
For connection to a power line using the provided power cord.

㉓ **INTERCOM connector**
External intercom signal can be applied to make possible the communication between the headset, connected to the RS-500 front panel INTERCOM jack, and another headset connected to the KY-950/KY-900/KY-310 camera. For details, see page 13.

㉔ **TALLY connector**
Rated tally signal can be applied to illuminate the viewfinder's tally lamp together with the TALLY indicator ⑫ on the RS-500 front panel. For details, see page 14.

㉕ **WFM connector**
When using a waveform monitor, the signal and power supply can be output from this connector.

㉖ **CAMERA CABLE connector**
The optional camera cable VC-544 or VC-545 can be used for connection with the camera.

㉗ **VIDEO OUTPUT connectors**
Video signals from the camera are output from these terminals.

COMPOSITE : Two encoded signals are provided.
WITHOUT SYNC : The terminals output R, G and B signal without sync.
TEST : The video signal selected by the TEST OUTPUT switch on the front panel is output.

Note: The monitor connected to the TEST connector (for registration adjustment, etc.) should be a black-and-white monitor.

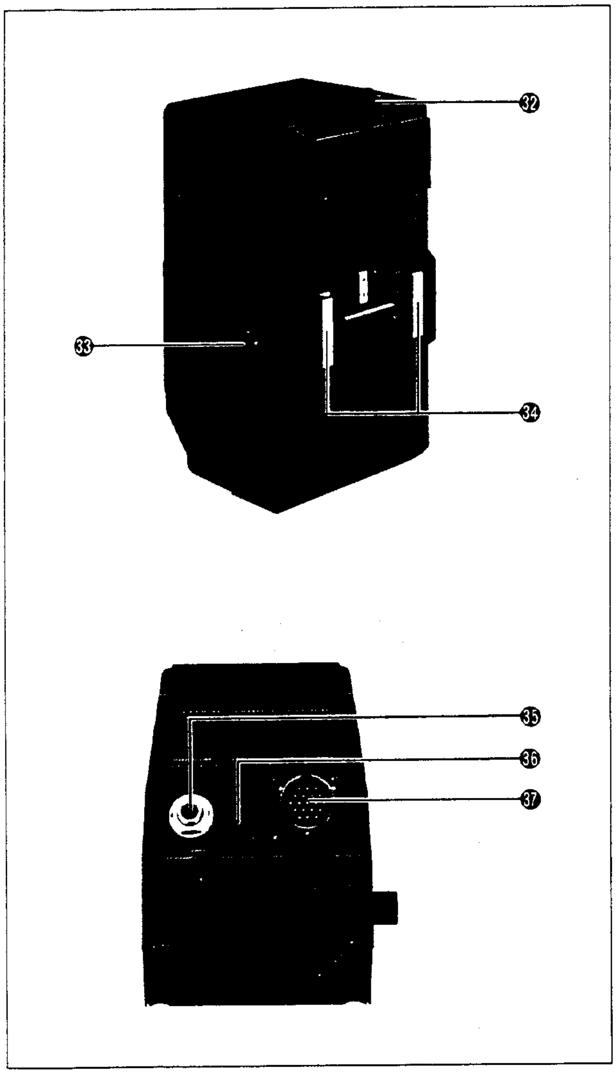
㉘ **GENLOCK INPUT connectors**
Composite video (VBS) or black burst signal can be input through these terminals as the reference signal for genlocking.
When using only one of the terminals, set the 75 Ω ON/OFF termination switch to ON.

㉙ **AUX VIDEO INPUT connectors**
The return video signal from a Special Effect Generator or switcher can be input via these terminals to be sent to the viewfinder.
When using only one of the terminals, set the 75 Ω ON/OFF termination switch to ON.

㉚ **AUX AUDIO INPUT connector**
The program's audio signal can be input from this connector to be inserted into the intercom line. See page 14.

㉛ **AUDIO OUTPUT connector**
The camera microphone output is output from this connector See page 14.

2-3. CAMERA ADAPTOR



㉜ **Securing screw**
For securing the camera adaptor onto the camera.

㉝ **Fixing screw**
For fixing the adaptor onto the camera.

㉞ **Fixing cams**
The cams can be opened and closed by the fixing screw.

㉟ **INTERCOM connector**
For connection of an intercom headset.
Communication is possible between the operators of the RS-500 and the camera. See page 13.

㊱ **Intercom GAIN control**
For adjustment of the intercom sound level.

㊲ **CAMERA CABLE connector**
Connect the VC-544 camera cable here.

3. PREPARATIONS

■ **Installing the camera adaptor**

- The camera adaptor connector is provided under a cover on the back of the camera, as shown in Fig. 3-1.
  Turn the screw counterclockwise to loosen it and pull the cover out and down to open it.

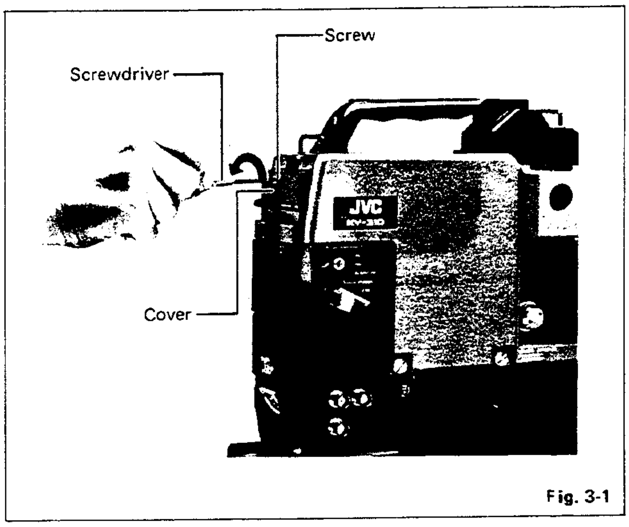


Fig. 3-1

- A fixing screw is provided on the right side of the adaptor (as seen from above). Turn the fixing screw fully counterclockwise, the fixing cams will open.

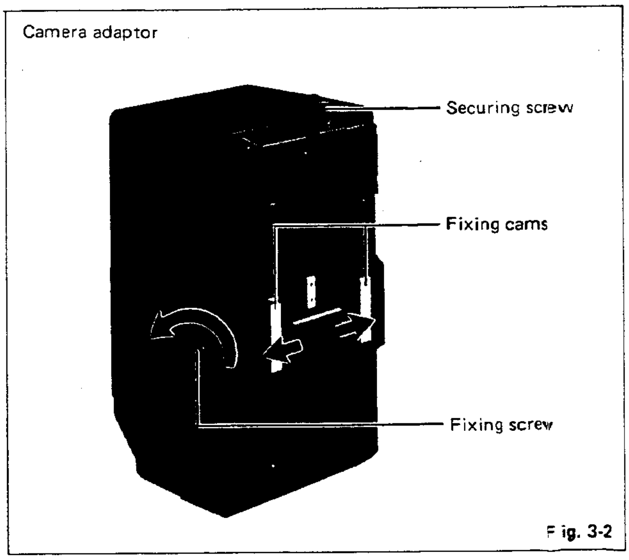


Fig. 3-2

- For the connection of the camera and camera adaptor via the connectors, press the adaptor in from the back of the camera so that the adaptor's securing screw meets the screw hole on the camera.

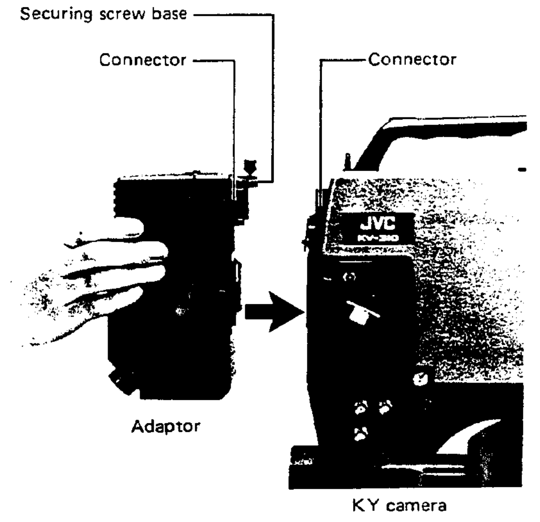

Securing screw base
Connector
Connector
Adaptor
KY camera

Fig. 3-3

- After checking that the connectors are connected properly, turn the securing screw clockwise to secure it.
- Finally, secure the camera and adaptor by turning the adaptor's fixing screw.

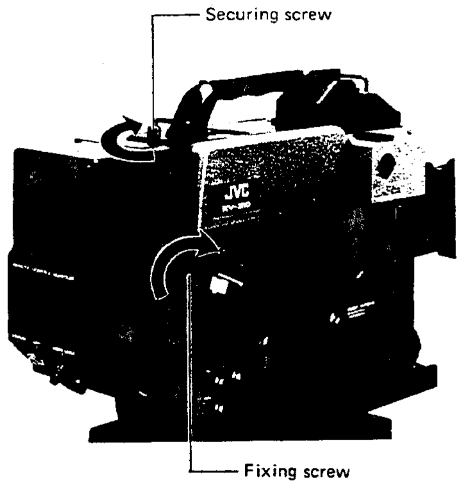

Securing screw
Fixing screw

Fig. 3-4

- **Supplying the AC power**

The selected voltage is indicated in the window below the voltage selector ㉑ in the AC LINE SELECT section.
Check the voltage indicated in the window; if it is different from your local voltage, set as required.

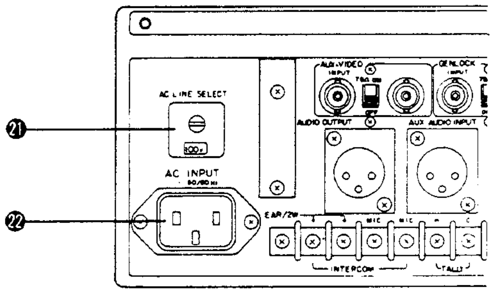
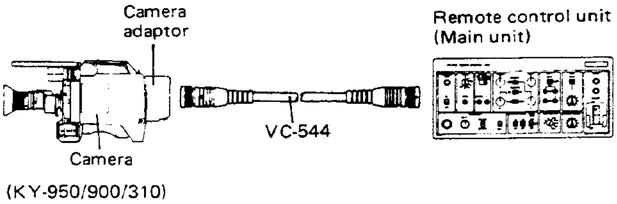

㉑
㉒
AC LINE SELECT
AC INPUT
AUX VIDEO INPUT
GENLOCK INPUT
AUDIO OUTPUT
AUX AUDIO INPUT
EAR/2W
MIC
INTERCOM
TALLY

Fig. 3-5

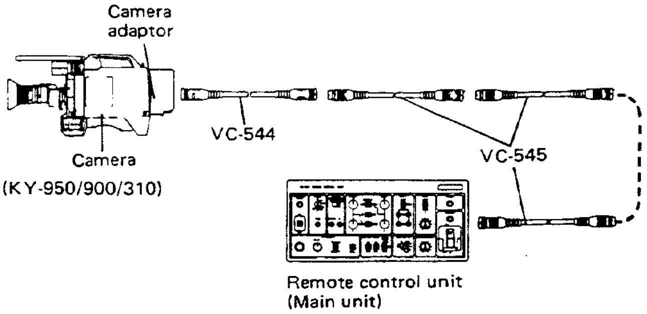
- **Camera cable connection**

Using the VC-544 and VC-545 camera cables, the distance between the KY-950/KY-900/KY-310 and RS-500 can be extended to 320 m (1,050 ft).

- When the distance between the camera and remote control unit is 20 m (65 ft) or less: Use the VC-544 cable.


Camera adaptor
Remote control unit (Main unit)
VC-544
Camera
(KY-950/900/310)

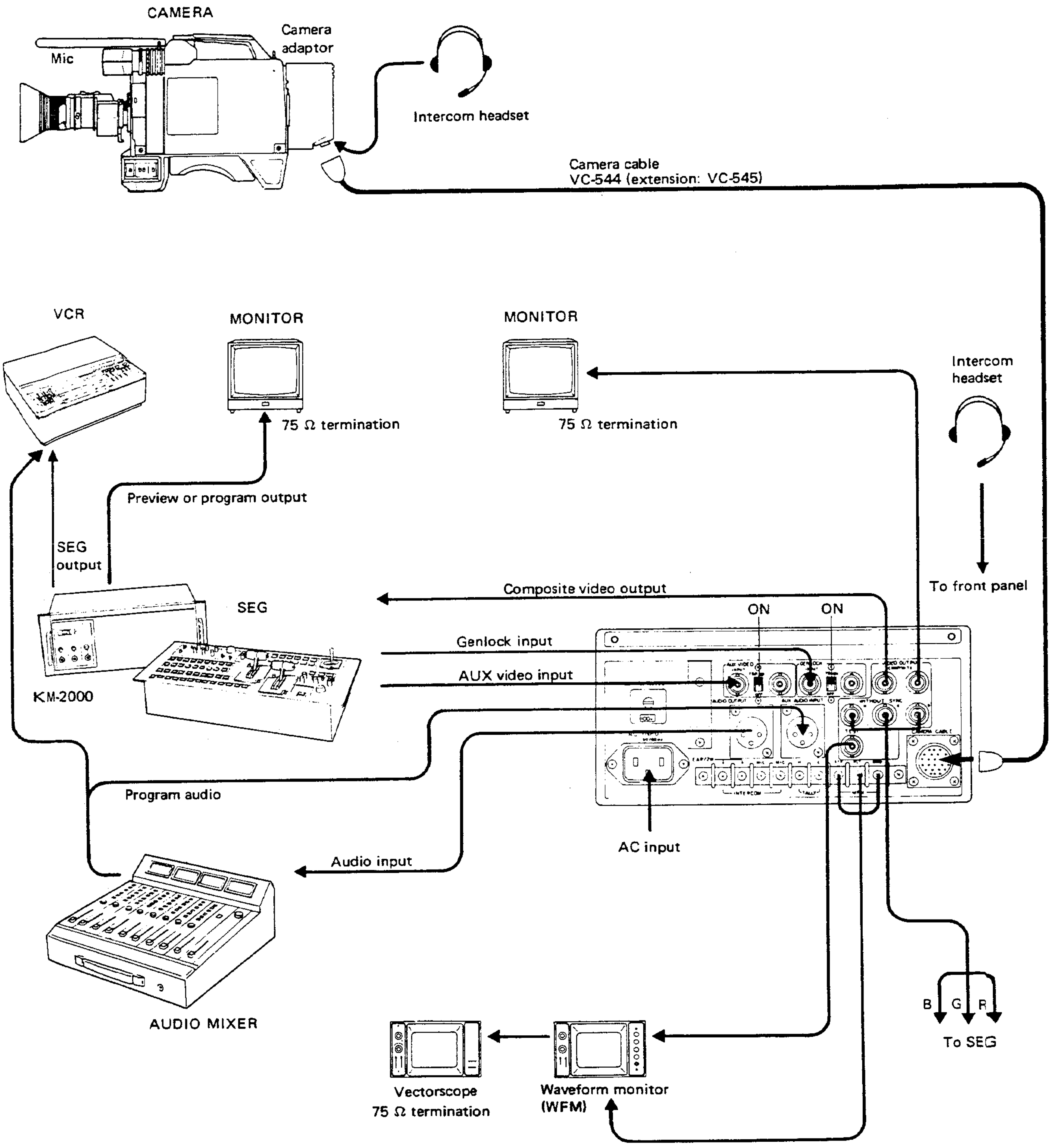
- When the distance between the camera and remote control unit is more than 20 m (65 ft): Connect the VC-544 cable to the camera adaptor, then extend using VC-545 cables as required.


Camera adaptor
VC-544
Camera
(KY-950/900/310)
VC-545
Remote control unit (Main unit)

Note:
When using the RS-500, be sure not to use the 14-pin VTR connector on the camera to prevent camera control errors.

4. CONNECTIONS

4-1 WHEN ONE RS-500 IS USED TO CONTROL A CAMERA

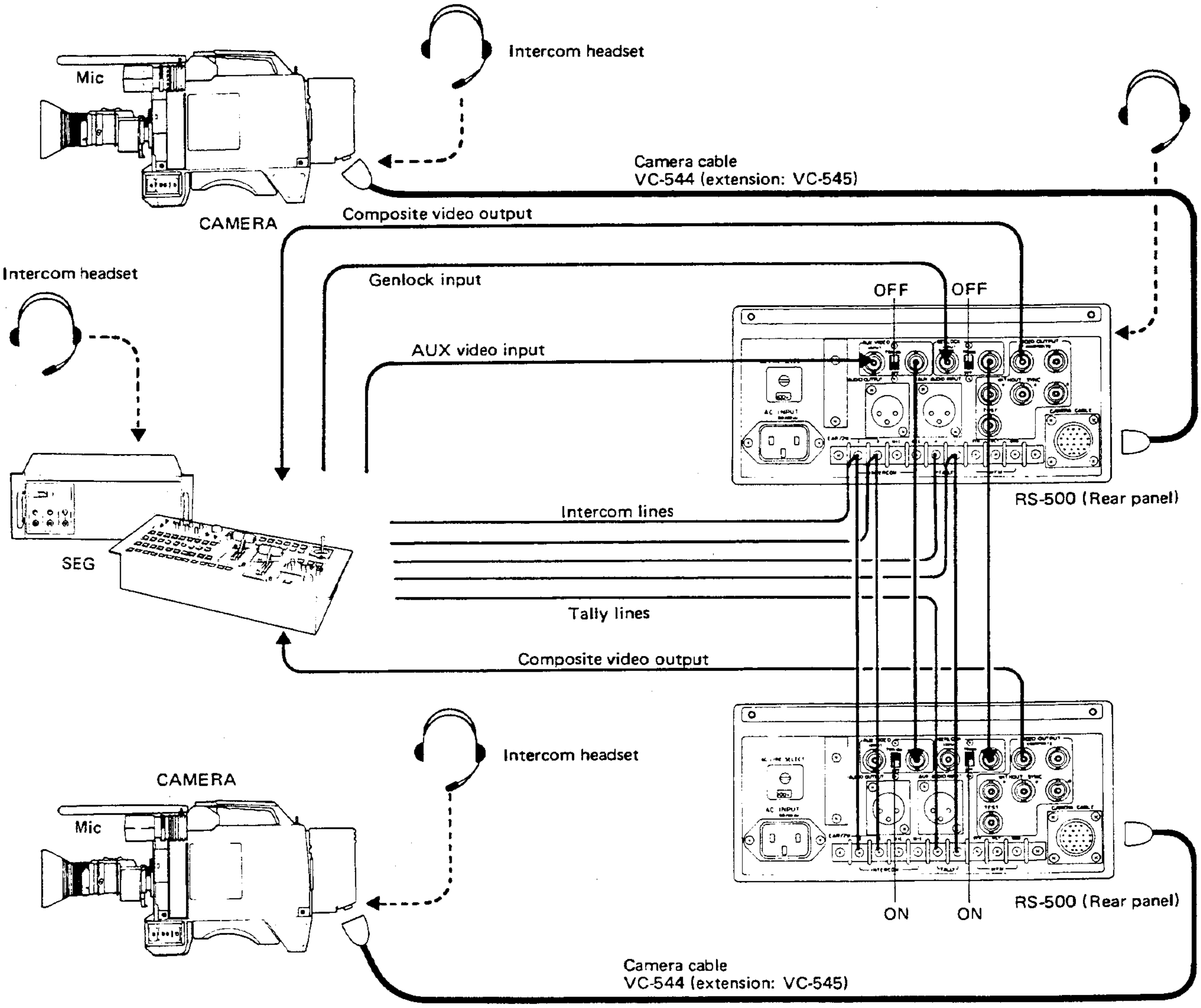


CAMERA
Mic
Camera adaptor
Intercom headset
Camera cable
VC-544 (extension: VC-545)
VCR
MONITOR
MONITOR
75 Ω termination
75 Ω termination
Intercom headset
Preview or program output
SEG output
To front panel
Composite video output
SEG
ON
ON
Genlock input
AUX video input
KM-2000
Program audio
AC input
Audio input
AUDIO MIXER
B
G
R
To SEG
Vectorscope
75 Ω termination
Waveform monitor
(WFM)

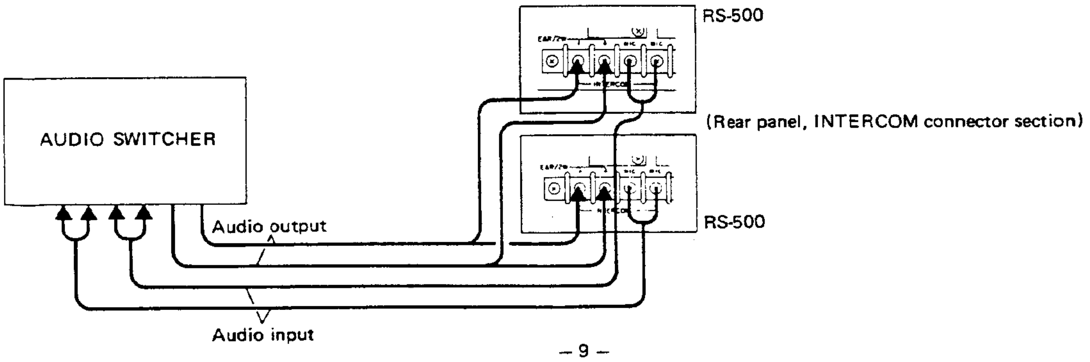
Note: The genlock signal must be stable. If a video signal played back by a video recorder is used for the purpose, a TBC (Time Base Corrector) will be required to stabilize it.

4-2 WHEN TWO RS-500s ARE USED TO CONTROL TWO CAMERAS FOR A TALLY AND INTERCOM LINE BUT WITHOUT A MASTER SSG

(1) **2-Wire Intercom System**


Intercom headset
Mic
Camera cable
VC-544 (extension: VC-545)
CAMERA
Composite video output
Intercom headset
Genlock input
OFF
OFF
AUX video input
SEG
Intercom lines
RS-500 (Rear panel)
Tally lines
Composite video output
Intercom headset
CAMERA
Mic
ON
ON
RS-500 (Rear panel)
Camera cable
VC-544 (extension: VC-545)

(2) **4-Wire Intercom System**
(Only parts different from the 2-wire system are shown here.)


RS-500
AUDIO SWITCHER
(Rear panel, INTERCOM connector section)
RS-500
Audio output
Audio input

5. OPERATIONS

5-1 USING ONE RS-500 FOR THE REMOTE CONTROL OF A CAMERA

[1] Connect the color video camera (KY-950/KY-900/KY-310) following the illustration in "4. CONNECTIONS" on page 8.

[2] Set the camera's POWER select switch to "RS" and the operation mode switch to "ON".

[3] Set the switches on the RS-500 as follows:

⑳ FUNCTION LOCK switch	OFF
⑮ WHITE BALANCE mode switch ...	AUTO
⑰ BLACK BALANCE mode switch ...	AUTO
⑭ REGISTRATION SHIFT switch ...	MEMORY
⑬ IRIS mode switch	AUTO
⑨ MASTER BLACK control	Mechanical center position

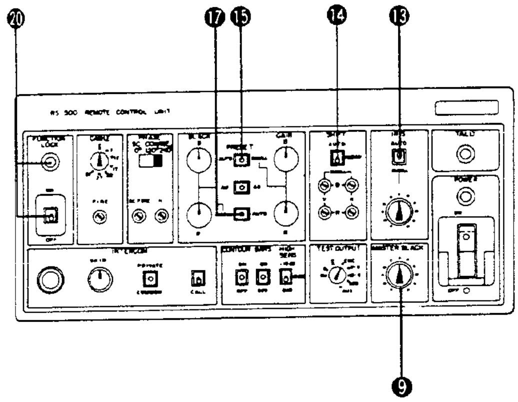


Fig. 5-1

[4] Set the CABLE compensation switch ⑲ according to the length of the camera cable(s) used.

[5] Set the RS-500's POWER switch to ON, then the color BARS switch ⑥ to ON. The color bar signal will be supplied from the camera.

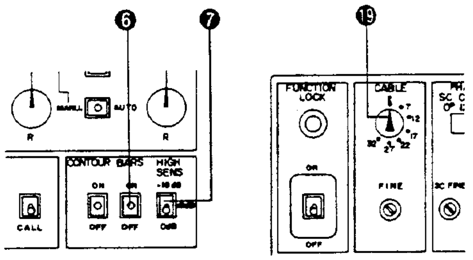


Fig. 5-2

[6] Adjust the color, hue, etc. controls of the monitor to which the video output signal from the RS-500 is connected.

[7] Set the BARS switch ⑥ to OFF.

In a studio with 3200 K lighting, operate as follows:

[8] Set the HIGH SENS switch⑦to 0 dB.

[9] Lens iris control operation
- When using the standard HZ-512 lens, set the switch on the lens to "AUTO".

(1) Auto iris control
Set the IRIS mode switch ⑬-a to AUTO: The iris level is automatically set according to the incident light.

(2) Manual iris control
Set the IRIS mode switch ⑬-a to MANU: The iris level can be controlled manually from closed to open using the control knob ⑬-b below the switch.

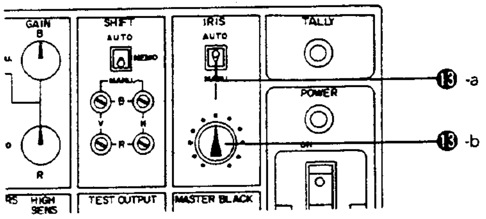


Fig. 5-3

Note for manual control operation:
When the iris control speed of HZ-E512 power zoom lens is low, the lens may sometimes not be able to be closed or opened fully: In such case, increase the speed by turning the IS (Iris Speed) VR of the HZ-E512 clockwise. (See the KY-950/KY-900/KY-310 Service Manual 1.8.3 Notes, Fig. 1-25.)

[10] White/Black balance adjustments
- Display a gray scale pattern under an illumination of at least 3000 lux (280 fc) to fill the monitor screen.

(1) Automatic adjustments
  1) Black balance adjustment
    - Set the black balance mode switch ⑰ to AUTO.
    - Set the AW/AB switch ⑮ to AB and hold for about 4 seconds, during which the AB circuit operates to adjust the black balance. When the switch is released, it returns automatically to the mechanical center position and the black balance condition is held in memory.

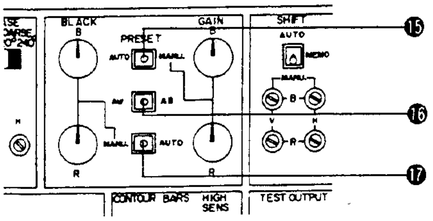

BLACK
GAIN
SHIFT
PRESET
AUTO
MANU
AW
AB
MEMO
B
R
V
H
CONTOUR
BARS
HIGH SENS
TEST OUTPUT
⑮
⑯
⑰

Fig. 5-4

2) White balance adjustment
- Set the white balance mode switch ⑮ to AUTO.
- Set the AW/AB switch ⑯ to AW and hold for about 4 seconds: The AW circuit operates to adjust the white balance. When the switch returns to its mechanical center position, the status is held in memory.

Now, repeat the black and white balance adjustments described above.

Note:
Black balance adjustment is sometimes insufficient if the MASTER BLACK level control is set to the minimum position. Before proceeding to auto black adjustment, adjust the MASTER BLACK control to around its mechanical center position.

(2) Manual adjustments
These adjustments should be performed observing an oscilloscope or waveform monitor to which the video output signal from the RS-500 is connected.

1) Black balance adjustment
- Set the black balance mode switch ⑰ -a to MANU.
- Adjust the black balance with the B and R BLACK level control knobs ⑰-b.
  The B control adjusts the B channel and the R control adjusts the R channel. Adjust each of these so that black carrier leakage is minimized. (Fig. 5-6)

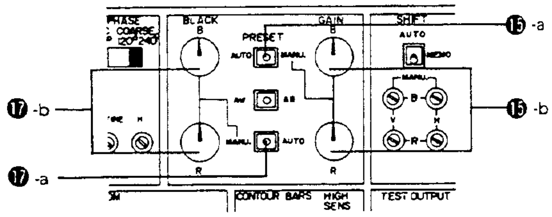

PHASE
COARSE
120°
240°
BLACK
GAIN
SHIFT
PRESET
AUTO
MANU
AW
AB
MEMO
B
R
V
H
CONTOUR
BARS
HIGH SENS
TEST OUTPUT
⑮ -a
⑮ -b
⑰ -b
⑰ -a

Fig. 5-5

2) White balance adjustment
- Set the white balance mode switch ⑮-a to MANU. The adjustment can now be done manually, using the B and R GAIN controls ⑮ -b. Adjust each of these so that white carrier leakage is minimized. (Fig. 5-6)

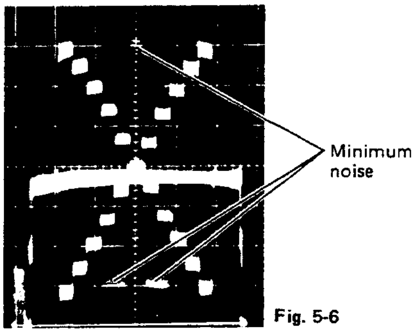

Minimum noise

Fig. 5-6

11 Master black level adjustment
The black level (set-up level) of the camera output can be adjusted with the MASTER BLACK level control ⑨.

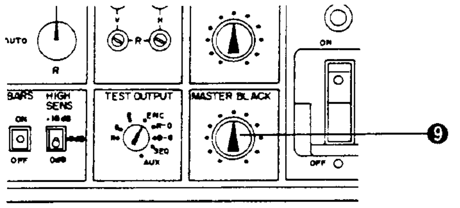

AUTO
R
V
H
ON
BARS
HIGH SENS
TEST OUTPUT
MASTER BLACK
OFF
AUX
⑨

Fig. 5-7

12 Registration adjustment
- Shoot a registration pattern with the camera and connect a video monitor to the TEST output connector on the RS-500 rear panel.

(1) Automatic shifting
Set the SHIFT mode switch ⑭ to AUTO and hold for about 4 seconds: The Auto-Shift circuit is activated for automatic adjustment.
When the switch is released, it returns automatically to MEMO and the data is held.

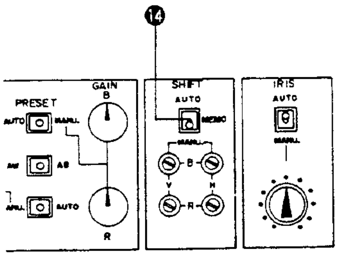

⑭
PRESET
GAIN
SHIFT
IRIS
AUTO
MANU
AW
AB
MEMO
B
R
V
H

Fig. 5-8

Note:
For the operation and control of the Auto-Shift registration circuit, see the instructions provided with the camera.

(2) Manual shifting
- Set the SHIFT mode switch ⑭-a to MANU: The adjustment can now be done manually with the B ⑭-b and R ⑭-c V/H SHIFT controls.
- Set the TEST OUTPUT mode switch ⑧ to R-G and adjust the R SHIFT controls ⑭-c observing the monitor.
- Set the TEST OUTPUT mode switch ⑧ to B-G and adjust the B SHIFT controls ⑭-b observing the monitor.

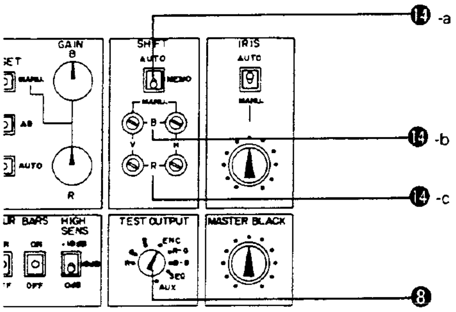

⑭ -a
GAIN
B
SHIFT
AUTO
MEMO
MANU
IRIS
AUTO
MANU
AB
AUTO
B
V
H
R
⑭ -b
⑭ -c
R
BARS
HIGH SENS
TEST OUTPUT
ENC
AUX
MASTER BLACK
ON
OFF
⑧

Fig. 5-9

⑬ Set the FUNCTION LOCK switch ⑳ to ON: The controls on the panel are now locked in order to prevent the optimum setting from being disturbed by careless handling.

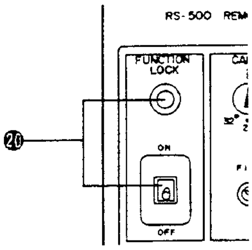

RS-500
FUNCTION LOCK
ON
OFF
⑳

Fig. 5-10

However, following controls are not disabled by the FUNCTION LOCK.
- CABLE compensation controls ⑲
- PHASE (SC/H) controls ⑱
- INTERCOM controls ①②③④
- TEST OUTPUT signal selector switch ⑧

⑭ Start shooting.

5-2 GENLOCKING OPERATION

① Make connections following the illustration in "4. CONNECTIONS" on page 9.

② Set and adjust the cameras and remote control units following the previous "5-1 Using One RS-500 for the Remote Control of a Camera".

③ Adjust the hues and phases of the cameras.

(1) Set the BARS switches of the RS-500s to ON so that color bar signals are generated by the cameras.

(2) Monitor the output of the SEG and adjust the H PHASE controls ⑱-a of the RS-500s so that the pictures from the cameras do not move horizontally when cuts and effects are switched.

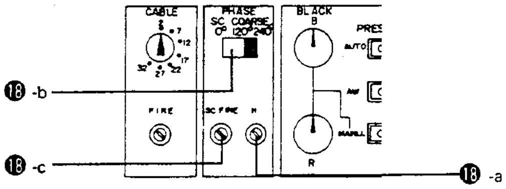

CABLE
PHASE
SC COARSE
0° 120° 240°
BLACK
B
PRESET
AUTO
AB
MANU
⑱ -b
⑱ -c
FINE
SC FINE
H
R
⑱ -a

Fig. 5-11

(3) The SC phase adjustments of the cameras are performed in the same way: Adjust the SC COARSE switches ⑱-b and SC FINE controls ⑱-c so that the phases of the pictures coincide when they are switched.

Note:
These adjustments can be done more accurately if a vectorscope and waveform monitor are used.

④ Set the BARS switches ⑥ to OFF to observe the pictures shot by the cameras.

⑤ Shoot a gray scale pattern with the cameras and adjust the B/R GAIN controls ⑮-b , B/R BLACK controls ⑰ and MASTER BLACK control ⑨ on each RS-500 so that the colors shot by the cameras are the same. (For adjustments, see item ⑩ (2) on page 11.)

These adjustments are not necessary when the cameras are set for automatic white/black balance adjustment.

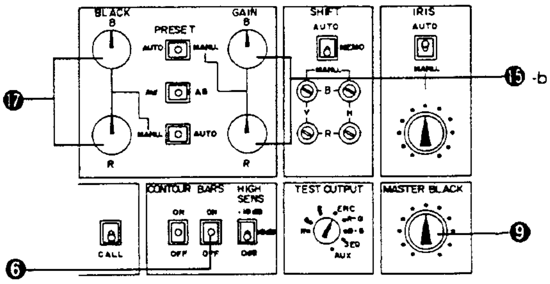

BLACK
B
PRESET
AUTO
MANU
GAIN
B
SHIFT
AUTO
MEMO
IRIS
AUTO
MANU
⑮ -b
⑰
AB
AUTO
R
R
CONTOUR
BARS
HIGH SENS
TEST OUTPUT
ENC
AUX
MASTER BLACK
ON
OFF
CALL
⑥
⑨

Fig. 5-12

[6] If any difference in picture quality is observed between the cameras, adjust using the CABLE FINE compensation controls ⓳

Note:
This compensation slightly changes SC phase so perform adjustment [3] (3) on page 12 again.

[7] Now start shooting.

Note:
For the connections and operations of the color video cameras, SEG, video recorder, etc., see the instructions provided with them.

Genlocking with a VCR playback signal
When genlocking KY-950/KY-900/KY-310 cameras with a video recorder playback signal, it is necessary to incorporate a time base corrector for the following reasons:

1. The video recorder playback signal contains jitter, so the camera locked to the video recorder playback signal produces an inferior picture containing the same jitter.
2. Since the KY-950/KY-900/KY-310 cameras incorporate a vertical contour circuit, the camera video output is accompanied with abnormal horizontal contour signals due to the horizontal frequency offset of the video recorder.
3. Since the burst shape is inferior to the video recorder playback signal, the chroma condition becomes unnatural when viewed on a monitor equipped with ACC (Automatic Chroma Control) through an SEG (Special Effets Generator).

6. ADDITIONAL FACILITIES

6-1 INTERCOM FUNCTION

In a video system with several cameras, remote controllers, etc., communications between the camera operators is necessary. The Intercom system enables this.

- The Intercom sytem of RS-500 is compatible with both 2-wire and 4-wire systems.
  For connection, see Fig. 6-1 below.

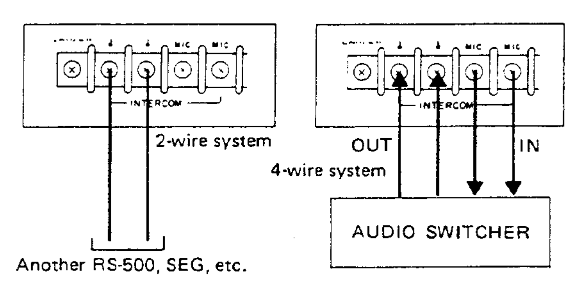


Fig. 6-1

- An INTERCOM jack ❶ is proved on the RS-500 front panel for connection of a communications headset. Use a headset with a carbon microphone (20 to 50 Ω/DC) and magnetic earphones (200 to 300 Ω/1 kHz).
- Communication format
  The intercom selector switch ❸ allows the selection of two kinds of communications.
  PRIVATE: For communications between the RS-500 and the connected camera.
  COMMON: For communications within the whole intercom system, including the RS-500 and the camera.
- CALL switch
  When the CALL switch ❹ is depressed, the tally lamp on the connected camera flickers, alerting the camera operator.

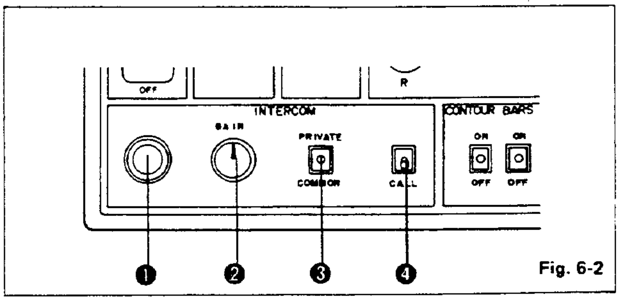


Fig. 6-2

- The sound level of the intercom can be adjusted with GAIN control ❷.

Note:

Intercom may not sufficient audio volume for KM-2000 JVC Special Effects Generator. Consult to JVC authorized service personnel in the case.

6-2 TALLY OUTPUT

In a video system with several cameras, it is necessary to warn the camera operators and performers which camera output is being used at any time. This function is done with the tally signal.

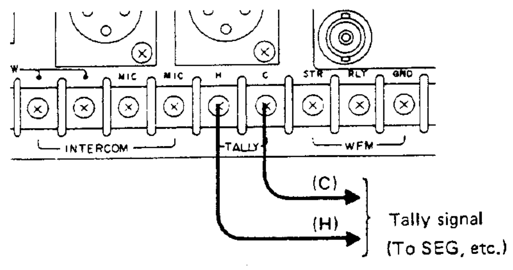

W
MIC
MIC
H
C
STR
RLY
GND
INTERCOM
TALLY
WFM
(C)
(H)
Tally signal
(To SEG, etc.)

Fig. 6-3

- The tally circuit is activated when 5 to 24 V DC or 6 V AC power is supplied or when the "make-contact" circuit is energized. Use internal switch SW3 to select the supply system.
  V: Voltage supply system
  M: Make-contact system
  (Prior to shipment from the factory, SW3 is set for "V" supply operation.)

Note:
When using the tally line, be sure to set the VTR trigger mode switch on the EN (Encoder) board inside the KY-950/KY-900/KY-310 camera to "B": This is to prevent tally operation errors that may occur if the switch is set incorrectly.

6-3 AUDIO SIGNAL

- When a microphone is connected to the KY-950 (900/310) camera, the microphone output is supplied through the VC-544/VC-545 camera cables and can be output from the AUDIO OUTPUT connector ㉛ on the RS-500 rear panel.
  Note:
  To use the audio signal from the RS-500, the Microphone output level switch on the camera should be set to HIGH (–20 dB).
- The PGM audio signal (program audio signal which is supplied from the mixer) can be inserted in the intercom line by connecting the mixer to the AUX AUDIO INPUT connector ㉚ on the RS-500 rear panel.

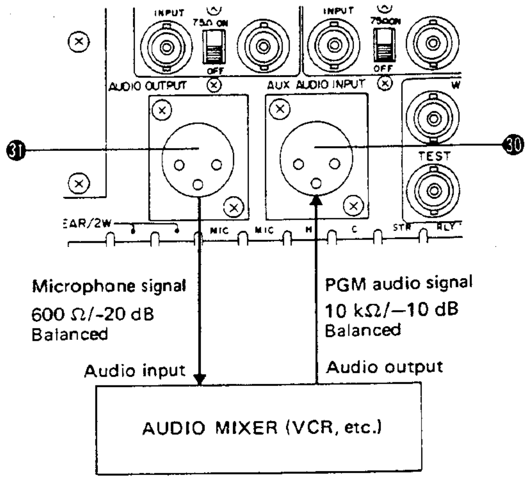
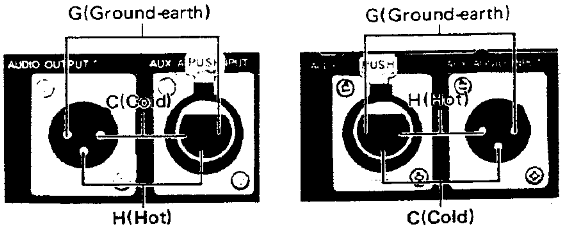

INPUT
75Ω ON
OFF
INPUT
75Ω ON
OFF
AUDIO OUTPUT
AUX AUDIO INPUT
W
TEST
㉛
㉚
EAR/2W
MIC
MIC
H
C
STR
RLY
Microphone signal
600 Ω/–20 dB
Balanced
Audio input
PGM audio signal
10 kΩ/–10 dB
Balanced
Audio output
AUDIO MIXER (VCR, etc.)

Fig. 6-4

AUDIO pin configuration

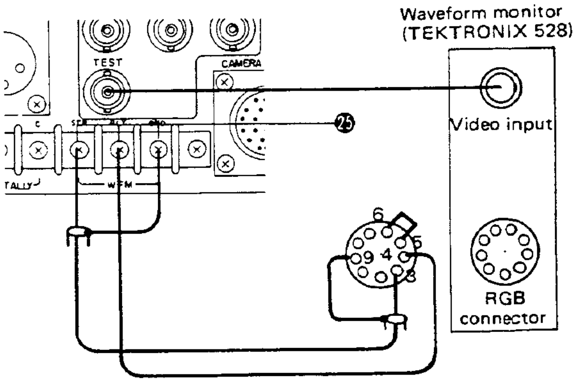

G(Ground-earth)
C(Cold)
H(Hot)
G(Ground-earth)
H(Hot)
C(Cold)
AUDIO OUTPUT
AUX AUDIO INPUT
PUSH

NTSC version PAL version Fig. 6-5

6-4 WAVEFORM MONITOR CONNECTOR

By connecting a waveform monitor to the WFM connector ㉕ on the RS-500 rear panel, it is possible to observe the R/G/B signals either together or separately.

1. Connect the RS-500 and waveform monitor (e.g. TEKTRONIX 528) as shown below.


Waveform monitor
(TEKTRONIX 528)
TEST
CAMERA
C
STR
RLY
GND
TALLY
WFM
㉕
Video input
6
9
4
5
3
RGB
connector

STR: Stairstep RLY: Relay GND: Ground-earth Fig. 6-6

Notes:
With the above connection, the RLY (Relay) signal is supplied by make-contact.
The recommended waveform monitor is the TEKTRONIX 528; for use of other models and for operation of the waveform monitor, see the instructions provided with the waveform monitor.

[2] Output the video signal from the camera.

[3] Set the TEST OUTPUT selector switch ⑧ to ENC: The composite video signal (VBS) of the camera is output to the WFM.
When the switch is set to SEQ, the camera's R/G/B signals are output separately to the WFM, switched by every line in sequence.

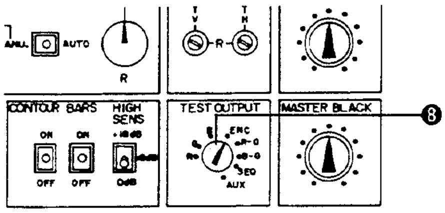

MANU
AUTO
R
T
V
R
T
H
CONTOUR
BARS
HIGH SENS
ON
ON
+18dB
OFF
OFF
0dB
TEST OUTPUT
ENC
R-G
B-G
SEQ
AUX
MASTER BLACK
⑧

Fig. 6-7

Waveforms displayed on the WFM
(when a gray scale pattern is shot)

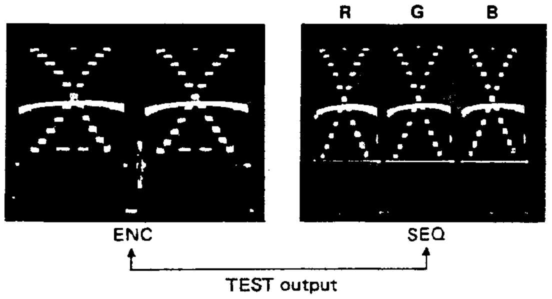

R
G
B
ENC
SEQ
TEST output

Fig. 6-8

6-5 FUNCTION LOCK

After performing all the adjustments required for the video signal from the camera, the FUNCTION LOCK switch ⑳-a should be set to ON. The FUNCTION LOCK lamp ⑳-b will light, indicating that the conditions set on the RS-500 front panel are locked.
This function is provided to prevent disturbing the optimum setting by careless handling.

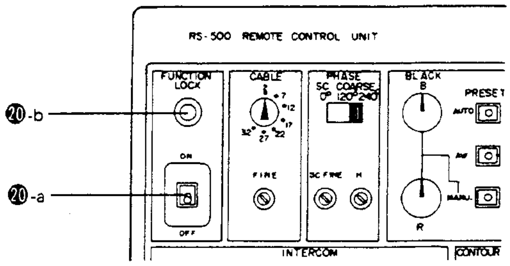

RS-500 REMOTE CONTROL UNIT
FUNCTION LOCK
ON
OFF
CABLE
PHASE
SC COARSE
0° 120° 240°
FINE
SC FINE
H
BLACK
B
PRESET
AUTO
MANU
R
INTERCOM
CONTOUR
⑳-b
⑳-a

Fig. 6-9

However, the sections below are not covered by the FUNCTION LOCK: Be careful in handling.

- CABLE compensation controls ⑲
- PHASE (SC/H) controls ⑱
- INTERCOM controls ① ② ③ ④
- TEST OUTPUT signal selector switch ⑧

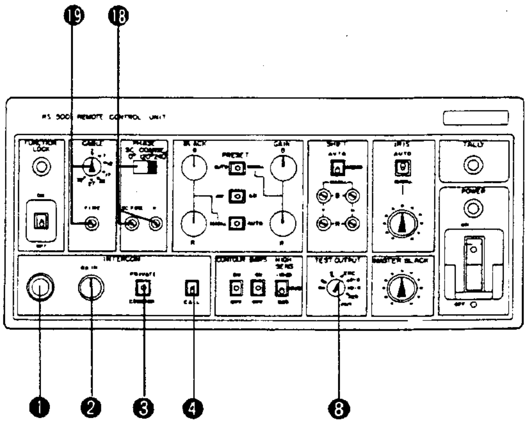


Fig. 6-10

7. OPTIONAL CAMERA CABLES

VC-545

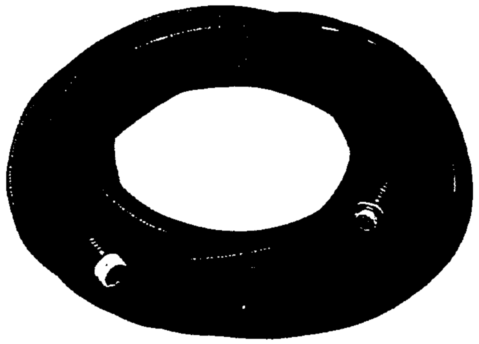
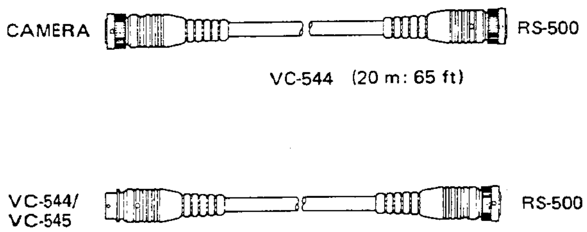


Fig. 7-1

VC-544: Camera cable, 20 m (65 ft)
VC-545: Exclusive extension cable, 50 m (160 ft)

Using one VC-544 camera cable and six VC-545 cables, the distance between the KY-950/KY-900/KY-310 camera and RS-500 main unit can be extended to 320 m (1,050 ft).

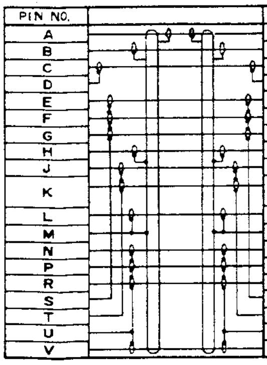


VC-544 (20 m: 65 ft)

VC-545 (50 m: 160 ft)

Fig. 7-2

Connection diagram VC-544/VC-545 (19-pin to 19-pin)



PIN NO.	SIGNAL	WIRE COLOR
A		
B	+140V DC	Black
C	Composite Video	Grey/Black
D		
E	Blue video	Grey/Green
F	Green "	Grey/Yellow
G	Red "	Grey/Orange
H	Command signal	Grey
J	Genlock "	Grey/Red
K	Aux video	Grey/Brown
L	H-Phase control	Orange
M	Shield ground	
N	Intercom M	White
P	" E	Black
R	Audio H	Brown
S	Shield (Video)	
T	" (")	
U	" (Audio)	
V	Audio C	Red

8. TROUBLESHOOTING

FAILURE OF CONTROLS

1. Tally lamp does not light up.
   - The external signal voltage is too low. (6 V AC or 5 – 24 V DC power is required.)
   - The tally switch SW3 is incorrectly adjusted.
   - The tally circuit on the RS board is defective.
2. Intercom; no sound through earphones
   - The headset is incorrectly connected.
   - Headset impedance is incorrect. (200 – 300 ohms at 1 kHz is the standard, and a carbon microphone should be employed.)

FAILURE OF VIDEO AND GENLOCKING

1. Color reproduction on the monitor is incorrect.
   - No color:
     The subcarrier frequency is too far from the standard frequency (more than ±50 Hz).
   - Incorrect hues of the color bar:
     The SC phase adjustment circuit is incorrectly adjusted or defective. (SG board in the KY-950/KY-900/KY-310 camera)
2. Sync holding is not possible on the monitor.
   - The H phase control is misadjusted or defective.
   - Requires sync signal for RGB monitor if used.
3. Trouble in genlocking operation.
   - Vertical sync failure:
     The genlock input (reference) signal is not 2 to 1 interlaced.
   - Genlocking is impossible:
     Incorrect or deteriorated genlock input (reference) signal to the unit.
     Phase potentiometers in the KY-950/KY-900/KY-310 color video camera are misadjusted. Refer to the KY-950/KY-900/KY-310 instructions.
4. Trouble in genlocking operation when used in combination with a special effects generator.
   - Genlocking is impossible:
     The special effects generator is not connected correctly.
   - Incorrect color or none at all:
     The SC phase controls (COARSE and FINE) are incorrectly adjusted or defective.

9. SPECIFICATIONS

Output signals

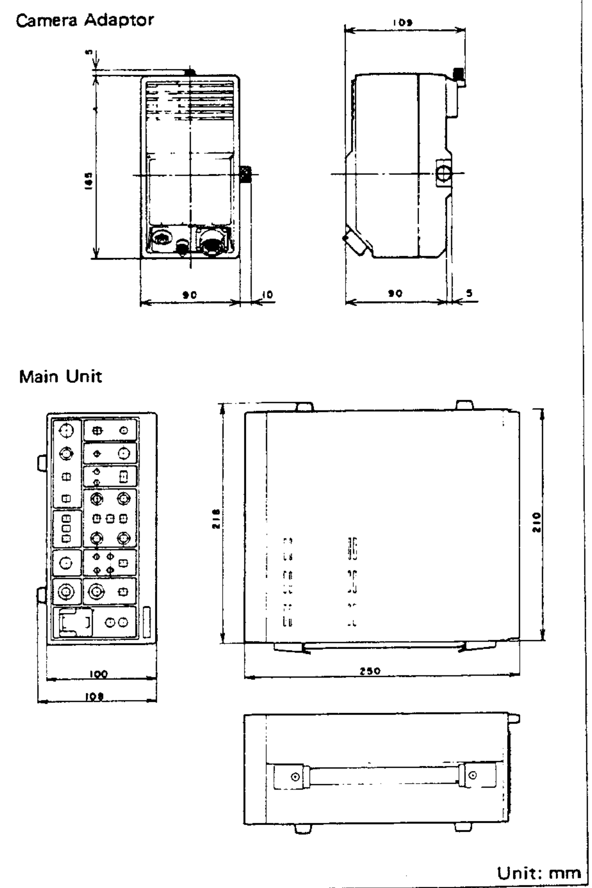
Composite video signals : 1.0 Vp-p, 75 Ω x 2
R/G/B signals : 0.7 Vp-p, 75 Ω x 1 each
Test video signals : ENC, R, G, B, B-G, R-G, SEQ, AUX (switchable)
Audio signal : -20 dBm, 600 Ω balanced
Intercom signal : Two-wire or four-wire system, line -10 dBm, 600 Ω balanced

Input signals

Genlock signal : Composite video signal 1.0 Vp-p, 75 Ω (Loop-through output), Black burst signal 0.43 Vp-p, 75 Ω (Loop-through output) [NTSC version], Black burst signal 0.45 Vp-p, 75 Ω (Loop-through output) [PAL version]
AUX signal : Composite video signal, 1.0 Vp-p, 75 Ω (Loop-through output)
Intercom signal : Two-wire or four-wire system, line −20 dBm, 600 Ω balanced
Tally signal : Make-contact or power (5 – 24 V DC or 6 V AC) supply
Audio signal : −10 dB 10 kΩ unbalanced

Power supply : 100/120/220/240 V AC, 50/60 Hz
Power consumption : 24 W (RS-500 only)
76 W (with camera)
Ambient temperature : -10°C to +45°C (14°F to 113°F)
Weight : Main Unit 4.8 kg (10.6 lbs)
Camera Adaptor 1.1 kg (2.5 lbs)
Accessory : AC Power Cord;
SCV0417-2M5 (USA & Canada)
QMP4908-250 (Europe except UK)
SCV0419-2M5 (United Kingdom)
SCV0420-2M5 (Australia)
Option : UC-1003 Rack Mount Adaptor

Dimensions



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MODEL RS-500

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SECTION 1
CIRCUIT DESCRIPTION

1.1 GENERAL DESCRIPTION

For operating the RS-500 Remote Control Unit (RCU), connect the RS-500, camera adaptor and camera cable(s) as shown in Fig. 1-1.

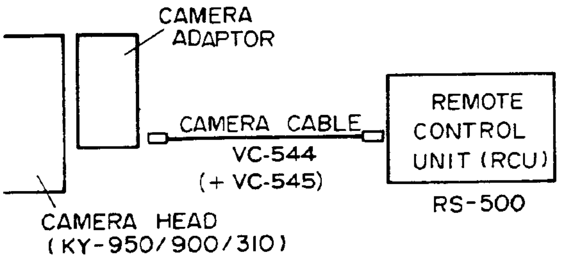


Fig. 1-1

For groups of signals are sent between the camera and RCU:

(1) Video signals
(2) Camera control (command) signals
(3) Communication signals
(4) Power supply

- **Camera Cable**

VC-544/VC-545 (19-pin)

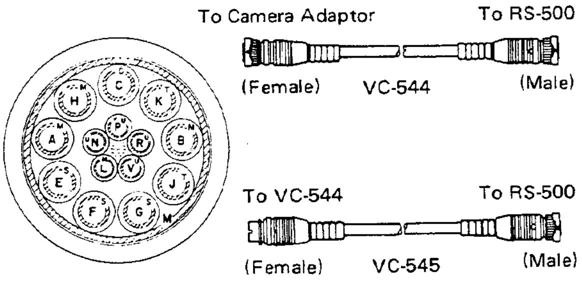
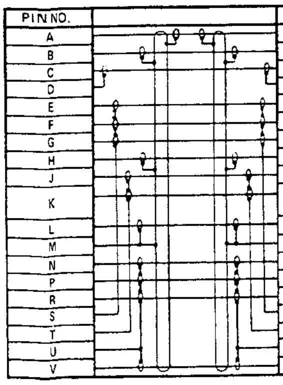


Fig. 1-2

- **Connection Diagram**



PIN NO.	SIGNAL	WIRE COLOR
A	0 V DC	White
B	+ 140 V DC	Black
C	Compsite Video	Grey/Black
D	Shield	
E	Blue video	Grey/Green
F	Green "	Grey/Yellow
G	Red "	Grey/Orange
H	Command signal	Grey
J	Genlock "	Grey/Red
K	Aux video	Grey/Brown
L	H-Phase control	Orange
M	Shield	
N	Intercom M (Mic.)	White
P	" E (Ear.)	Black
R	Audio H	Brown
S	Shield (Video)	
T	" (")	
U	" (Audio)	
V	Audio C	Red

Table 1-1

1.2 VIDEO SIGNALS

1.2.1 Types of video signals

1. Signals from the camera adaptor to the RCU:
   (1) Composite Video signal
   (2) R/G/B video signals (without Sync)
2. Signals from the RCU to the camera adaptor:
   (1) AUX (return video)
   (2) Genlock (Black Burst)

Note: The genlock signal (2) is supplied from the RCU after the burst subcarrier is phase-adjusted.

1.2.2 Cable compensation circuit

1. Compensation of the Composite Video and R/G/B signals

The R/G/B signals from the camera's video process amp and the Composite Video output from the encoder are buffered in the camera adaptor, and the signals are supplied to the RCU via the camera cable.

The video signals supplied to the RCU are compensated for cable length from 20 m (65 ft) to 320 m (1,050 ft). Since the circuit configuration is the same for the Composite Video and R/G/B signals, explanation will be given using the Composite Video cable length compensation circuit as an example.

The video signal from the camera cable is input at Q1 base with positive polarity on VBS board. The low frequency component of the signal is changed by FETs Q3—Q9 and the signal is applied to the base of Q2. The emitter of which is connected to the HPF selected by Q10—Q15 to reduce the high frequency component feedback: The frequency response of specified band (high and mid) is compensated by this.
The compensated video signal is output to the VIDEO OUTPUT connector on the RCU rear panel through the output distributor amp.

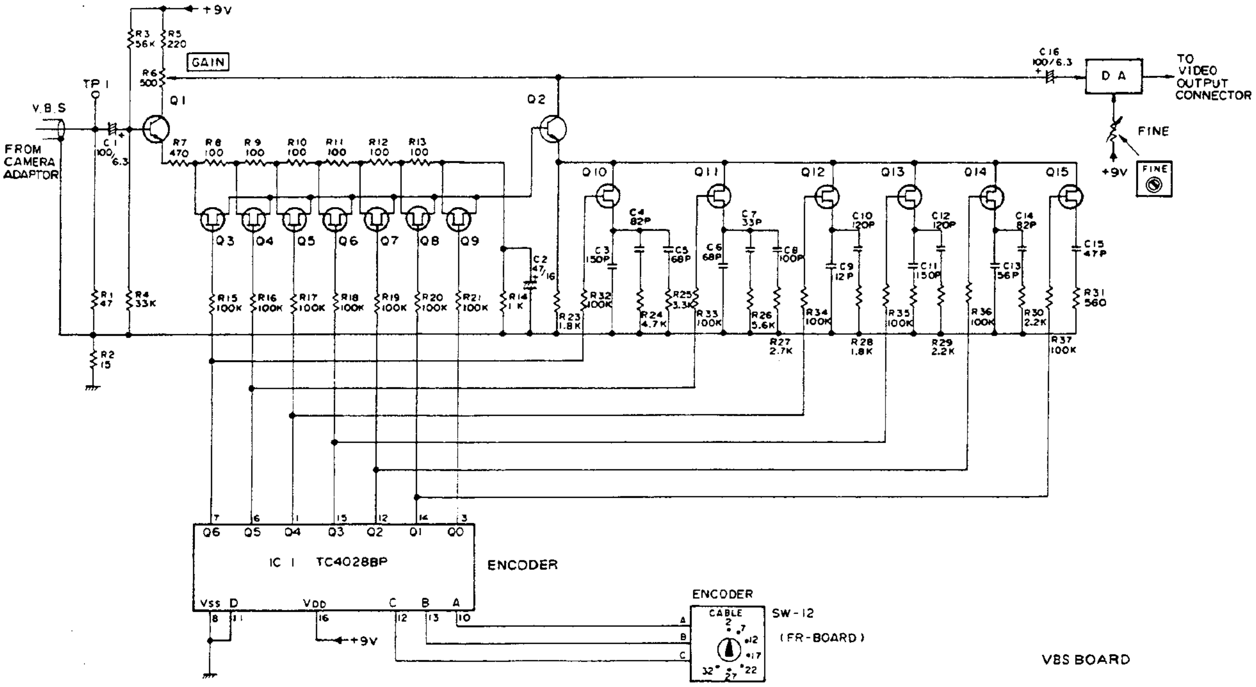

+9V
R3 56K
R5 220
GAIN
R6 500
TP 1
V.B.S
FROM CAMERA ADAPTOR
C1 100/6.3
Q1
Q2
R7 470
R8 100
R9 100
R10 100
R11 100
R12 100
R13 100
Q3
Q4
Q5
Q6
Q7
Q8
Q9
R1 47
R4 33K
R2 15
R15 100K
R16 100K
R17 100K
R18 100K
R19 100K
R20 100K
R21 100K
R14 1K
C2 47/16
Q10
Q11
Q12
Q13
Q14
Q15
C3 150P
C4 82P
C5 68P
C6 68P
C7 33P
C8 100P
C9 12P
C10 120P
C11 150P
C12 120P
C13 56P
C14 82P
C15 47P
R23 1.8K
R32 100K
R24 4.7K
R25 3.3K
R33 100K
R26 5.6K
R27 2.7K
R34 100K
R28 1.8K
R35 100K
R29 2.2K
R36 100K
R30 2.2K
R31 560
R37 100K
C16 100/6.3
D A
TO VIDEO OUTPUT CONNECTOR
FINE
+9V
FINE
Q6 Q5 Q4 Q3 Q2 Q1 Q0
IC 1 TC4028BP
ENCODER
Vss D VDD C B A
+9V
ENCODER
CABLE
SW-12
(FR-BOARD)
VBS BOARD

Fig. 1-3 Decoder (VBS board)

2. Compensation of the AUX and Genlock signals
The signals sent from the RCU to the camera are AUX (return video) and Genlock (Black Burst or Composite Video) signals.
These signals are compensated before being output from the RCU, by boosting by the amount of cable attenuation. The compensation circuit configuration is similar to that described before.

With the Genlock signals, the compensation method is slightly different from the AUX signal. The Black Burst (or Composite Video) input to the RCU from external source (SEG, SSG, etc.) is separated into burst and sync signals. The phase of the burst signal is adjusted (SC PHASE) and a new Black Burst signal is formed (Fig. 1-4). The Black Burst signal for Genlocking is then applied to the cable length compensation circuit so that the signal is boosted according to the length of camera cable before being sent to the camera adaptor.

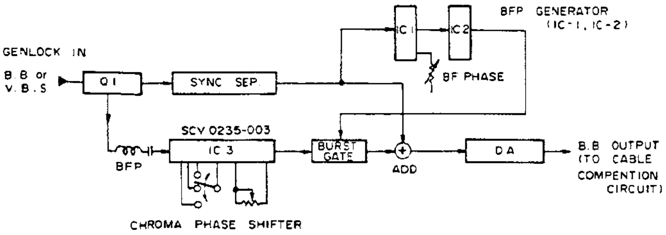

BFP GENERATOR (IC-1, IC-2)
GENLOCK IN
B.B or V.B.S
Q1
SYNC SEP
IC1
IC2
BF PHASE
SCV 0235-003
IC 3
BFP
BURST GATE
ADD
D A
B.B OUTPUT (TO CABLE COMPENTION CIRCUIT)
CHROMA PHASE SHIFTER

Fig. 1-4

1.3 CAMERA CONTROL (COMMAND) SIGNALS

The types of camera control signals are as follows:

①	MASTER BLACK	Analog signal
②	R-ch (H) SHIFT	Analog signal
③	R-ch (V) SHIFT	Analog signal
④	B-ch (H) SHIFT	Analog signal
⑤	B-ch (V) SHIFT	Analog signal
⑥	R-ch GAIN	Analog signal
⑦	B-ch GAIN	Analog signal
⑧	HI-SENS	Switching signal
⑨	R-ch BLACK	Analog signal
⑩	B-ch BLACK	Analog signal
⑪	IRIS (AUTO/MANUAL switching, MANUAL)	Analog signal
⑫	BARS	Analoy signal
⑬	BLACK (AUTO/MANUAL switching)	Switching signal
⑭	AUTO SHIFT (AUTO)	Switching signal
⑮	AUTO SHIFT (MANUAL)	Switching signal
⑯	CONTOUR	Switching signal
⑰	TALLY (CALL)	Switching signal
⑱	TALLY (ON/OFF)	Switching signal

These control are digitized and supplied to the camera adaptor using one conductor as the command line.

Note: The H PHASE control is processed in a different way than control signals ① to ⑱. This signal is not multiplexed as a command signal but occupies an exclusive conductor by which it is output as a DC voltage to the camera adaptor.

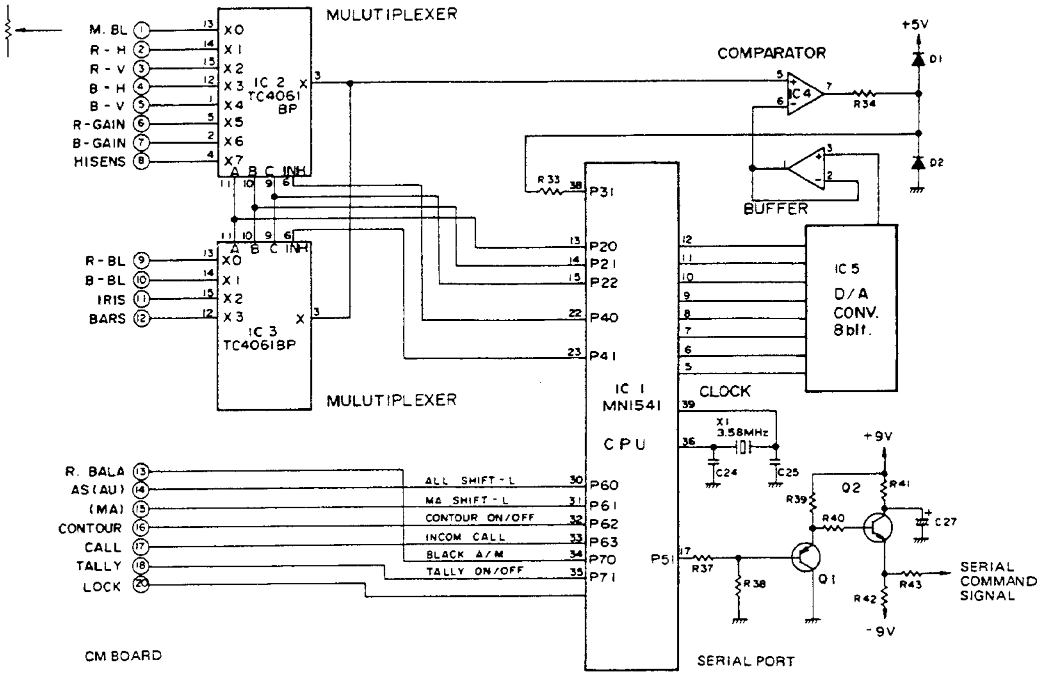

MULUTIPLEXER
M. BL ①
R-H ②
R-V ③
B-H ④
B-V ⑤
R-GAIN ⑥
B-GAIN ⑦
HISENS ⑧
X0
X1
X2
X3
X4
X5
X6
X7
IC 2
TC4061BP
A B C INH
R-BL ⑨
B-BL ⑩
IRIS ⑪
BARS ⑫
IC 3
TC4061BP
MULUTIPLEXER
COMPARATOR
IC4
R34
+5V
D1
D2
BUFFER
R33
P31
P20
P21
P22
P40
P41
IC 5
D/A
CONV.
8bit.
IC 1
MN1541
CPU
CLOCK
X1
3.58MHz
C24
C25
+9V
Q2
R41
R39
R40
C27
R. BALA ⑬
AS(AU) ⑭
(MA) ⑮
CONTOUR ⑯
CALL ⑰
TALLY ⑱
LOCK ⑳
ALL SHIFT-L
MA SHIFT-L
CONTOUR ON/OFF
INCOM CALL
BLACK A/M
TALLY ON/OFF
P60
P61
P62
P63
P70
P71
P51
R37
R38
Q1
R42
R43
-9V
SERIAL COMMAND SIGNAL
CM BOARD
SERIAL PORT

Fig. 1-5

1.3.1 Circuitry in the transmitting RCU

Fig. 1-6 shows the circuitry for conversion of camera control signals into command signals.

The signals from MASTER BLACK to BARS (① – ⑫) are voltage values (analog signals) corresponding to the settings of the controls on the panel and input to IC2 or IC3. IC2 and IC3 are multiplexers (analog switches) that output the inputs by switching them to conform with the address signal from the IC1 CPU. The signal selected by IC2 or IC3 is input to the ⊕ input of the comparator in IC4, the ⊖ input to which is the D/A converted signal of the 8-bit digital signal from CPU (IC1).

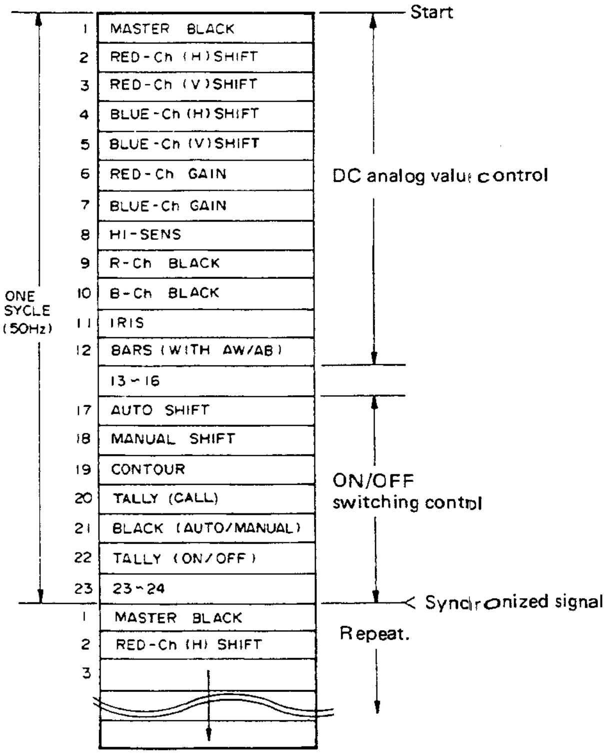
The comparison between these two signals is done by follow-up method described in 1 to 5 below.

1. When a signal is input to the ⊕ input of IC4 comparator, the CPU (IC1) outputs the center value (80 H) of the 8-bit data as a digital signal (10000000).
2. This digital signal is D/A converted and input to the ⊖ input of IC4.
3. IC4 compares the ⊕ input and ⊖ input and feeds back the result to the CPU.
   If ⊕ input voltage > ⊖ input voltage: Logic H.
   If ⊕ input voltage < ⊖ input voltage: Logic L.
4. When the feedback voltage is at Logic H, the comparison initial value (comparison start) is set to the center value (80 H). At Logic L, the initial value is set at the minimum value (0 H).

Note: Center value 80 H → 10000000 = 128
Minimum value 00 H → 00000000 = 0
Maximum value FFH → 11111111 = 255

5. After the initial value is set, the CPU outputs an 8-bit signal with this value and then starts to count up.
   The count automatically stops when the output coincides with the comparison value in IC4, and the digital value at this point is input to the RAM (Read Access Memory) in IC1.

The analog signals from ① M. BL. to ⑫ BARS are A/D converted and stored in memory in sequence, following the method described above.

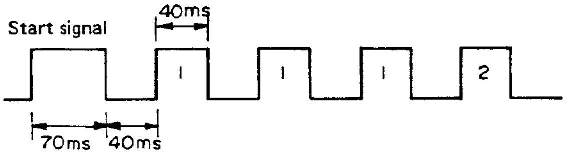


1	MASTER BLACK
2	RED-Ch (H)SHIFT
3	RED-Ch (V)SHIFT
4	BLUE-Ch (H) SHIFT
5	BLUE-Ch (V) SHIFT
6	RED-Ch GAIN
7	BLUE-Ch GAIN
8	HI-SENS
9	R-Ch BLACK
10	B-Ch BLACK
11	IRIS
12	BARS (WITH AW/AB)
	13~16
17	AUTO SHIFT
18	MANUAL SHIFT
19	CONTOUR
20	TALLY (CALL)
21	BLACK (AUTO/MANUAL)
22	TALLY (ON/OFF)
23	23~24
1	MASTER BLACK
2	RED-Ch (H) SHIFT
3	

Start
DC analog value control
ONE SYCLE (50Hz)
ON/OFF switching control
Syncronized signal
Repeat.

Fig. 1-6

The ON/OFF values of the signals from ⑬ BLACK (AUTO/MANUAL) to ⑱ TALLY (ON/OFF) are input directly to the CPU (IC1) and stored in memory. The A/D converted signals are arranged serially and output from the output terminal (P31) in sequence (time-division serial transmission). The data are repeatedly transmitted as shown in the format of Fig. 1-7.
In this data transmission, each signal is transmitted three times successively.


Start signal
40ms
1
1
1
2
70ms
40ms

(Example) 1 : MASTER BLACK
2 : R (H) SHIFT

Fig. 1-7

The same signal is transmitted three times to prevent erroneous transmission due to noise: The camera adaptor accepts a transmission signal only when the three transmissions of the signal are identical.
Erroneous reception is also prevented in the case all the three transmissions are degraded by noises (when datum is FF [256] or 00 [0]).

For synchronization between the data transmitter (RCU) and the receiver (camera adaptor), sync signals are inserted between data blocks.
If the receiver cannot pick up the synchronized signals, all the data are cancelled.

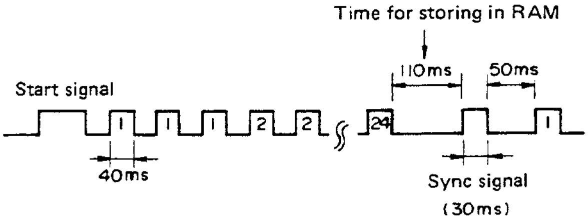

Time for storing in RAM
110ms
50ms
Start signal
1
1
1
2
2
24
1
40ms
Sync signal
(30ms)

Fig. 1-8

The CPU is provided with a HALT (LOCK) input terminal. When the FUNCTION LOCK switch on the RCU front panel is set to ON, the HALT input becomes High and the CPU is interrupted: Rewriting the CPU data is now inhibited and the serial port outputs the memory data before HALT is engaged.
This function is provided to prevent disturbing the optimum settings of the RCU by careless handling. However, the INTERCOM and TALLY functions are not disabled by this function.

1.3.2 Circuitry in the receiving camera adaptor

The receiver uses the same IC used as the transmitter's CPU. This IC is designed so that it can be used as the transmitter when pin 20 is supplied with V_{DD} and as the receiver when pin 20 is grounded.
Serial data from the RCU are input to the CPU IC18. The three transmissions of the same signal are logically added and compared. When the transmission signals coincide, the data is stored in the RAM inside IC18.

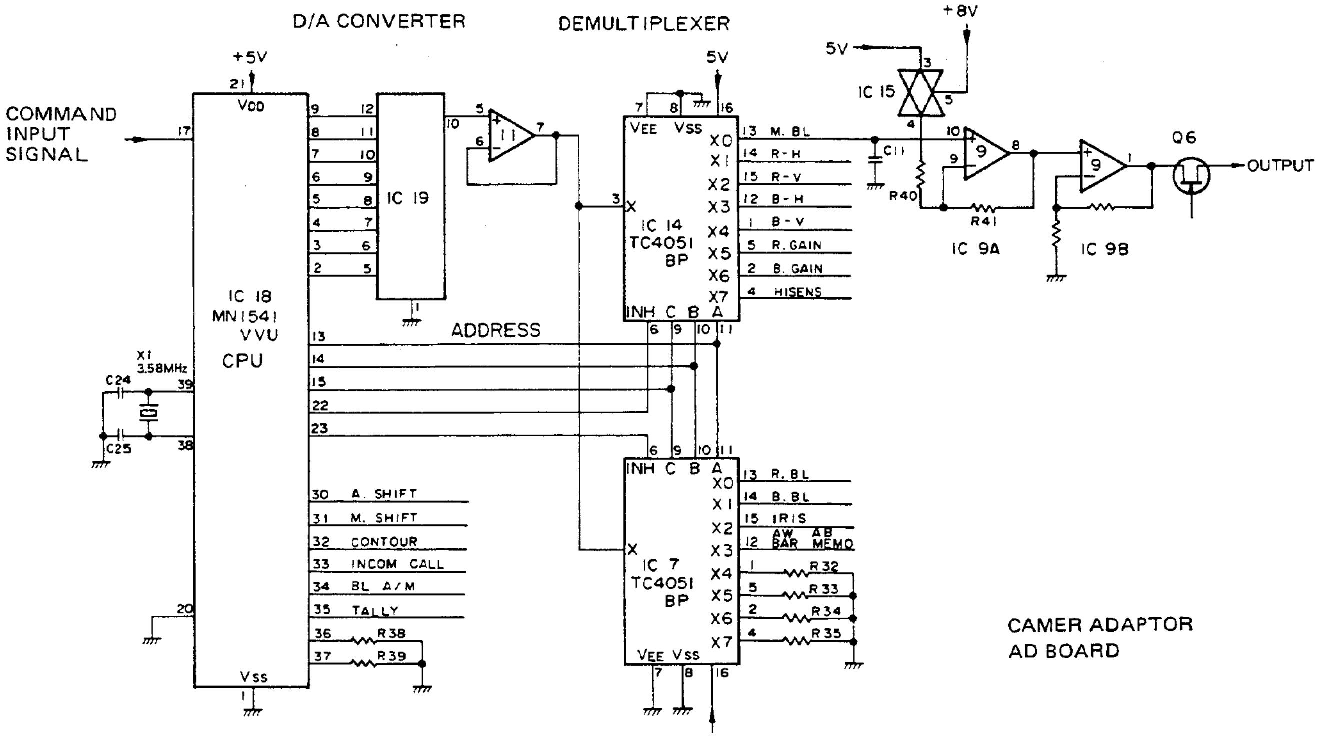

D/A CONVERTER
DEMULTIPLEXER
+5V
5V
5V
+8V
COMMAND INPUT SIGNAL
VDD
IC 18
MN1541
VVU
CPU
X1
3.58MHz
C24
C25
Vss
IC 19
ADDRESS
IC 14
TC4051
BP
VEE
VSS
INH C B A
X
X0
X1
X2
X3
X4
X5
X6
X7
M. BL
R-H
R-V
B-H
B-V
R. GAIN
B. GAIN
HISENS
IC 7
TC4051
BP
R. BL
B. BL
IRIS
AW AB BAR MEMO
R32
R33
R34
R35
A. SHIFT
M. SHIFT
CONTOUR
INCOM CALL
BL A/M
TALLY
R38
R39
IC 15
C11
R40
R41
IC 9A
IC 9B
Q6
OUTPUT
CAMER ADAPTOR
AD BOARD

Fig. 1-9

The memory data is then output with the timing of CPU to the D/A converter to be converted back to analog signals. The analog signals are input to IC14 and IC7 and switched in sequence by the address signal from the CPU.

The signals selected with IC14/IC7 charge capacitors C11 to C22 (for example, MASTER BLACK for C11) with the voltages which are the value set on the RCU control panel.

IC9A is the DC shift circuit for shifting the DAC output from D/A converter IC19 which always has ⊕ amplitude. This shifting is necessary because the control voltages of the KY-950/KY-310 cameras are required to have both ⊕ and ⊖ voltages around GND level.

IC9B is the buffer.

IC15 is the ON/OFF switch for level shift operation: It is ON when the KY-950/KY-900/K/310 camera is used.

Q6 operates as the control element when the output to the camera head is separated: For example, when remote controlling registration shifting, the gate is closed with "MANUAL" and open with "AUTO".

1.4 COMMUNICATION SIGNALS

There are four types of communication signals.

①	Microphone signal	(Camera → RCU)
②	Intercom signal	(Camera ↔ RCU)
③	Call	(RCU → Camera)
④	Tally	(RCU → Camera)

1.4.1 Microphone signal

The diagram below shows the microphone line system.

The microphone output is amplified by the audio amp inside the KY-950/KY-900/KY-310 camera and input to the camera adaptor. The signal is sent to the RCU through the Audio Transformer. (600 : 600 Ω).

1.4.2 Intercom signal

Either 2-wire or 4-wire intercom line can be used. The diagram below shows the intercom line system.

Fig. 1-12 above shows the 4-wire system. When using the 2-wire system, only the "4-E (2 W)" of INTERCOM LINE is used.

IC4 is an analog switch which is activated by the PRIVATE/COMMON switch on the RCU control panel.

The states of the IC4 control signal are:

PRIVATE : Logic L
COMMON : Logic H

The intercom line is opened and closed by this.

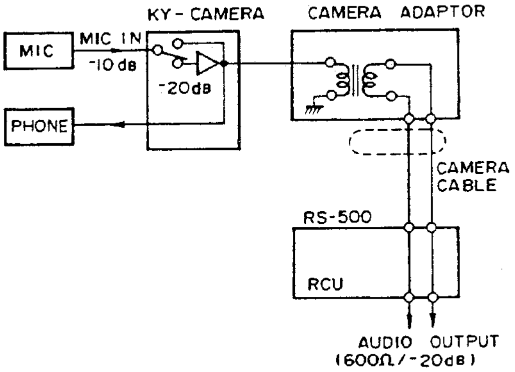

KY - CAMERA
CAMERA ADAPTOR
MIC
MIC IN
-10dB
-20dB
PHONE
CAMERA CABLE
RS-500
RCU
AUDIO OUTPUT
(600Ω/-20dB)

Fig. 1-10

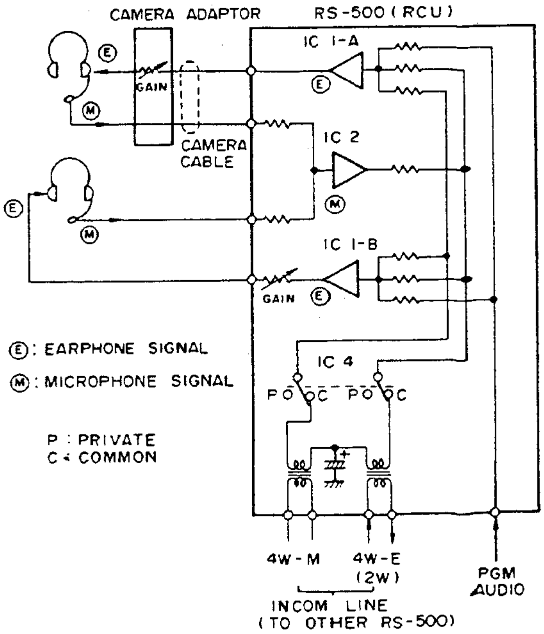

CAMERA ADAPTOR
RS-500 (RCU)
IC 1-A
Ⓔ
Ⓜ
GAIN
CAMERA CABLE
IC 2
IC 1-B
GAIN
IC 4
P O C P O C
Ⓔ: EARPHONE SIGNAL
Ⓜ: MICROPHONE SIGNAL
P : PRIVATE
C : COMMON
4W-M
4W-E
(2W)
INCOM LINE
(TO OTHER RS-500)
PGM AUDIO

Fig. 1-11

1.5 SEQ SIGNAL GENERATOR

The TEST OUTPUT switch on the RCU control panel allows to select one of the signals below.

① R ⑤ B-G
② G ⑥ ENC
③ B ⑦ AUX
④ R-G ⑧ SEQ

By inputting the SEQ signal ⑧ to a WFM, the R/G/B signals of the camera can be displayed in one sweep, making possible simultaneous observation. This facility is possible only with WFMs provided with a terminal that can accept a stairstep signal as the external sweep signal. (Ex. : Type 528 by TEKTRONIX)
The generating method of the SEQ signal is described below.

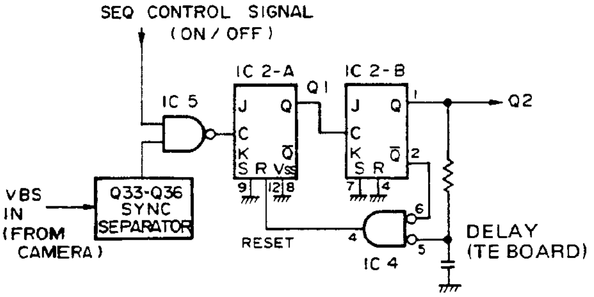

SEQ CONTROL SIGNAL
(ON / OFF)
IC 2-A
IC 2-B
Q1
Q2
IC 5
J
Q
C
K
Q̄
S
R
Vss
VBS IN (FROM CAMERA)
Q33-Q36 SYNC SEPARATOR
9
12
8
7
4
1
2
6
5
RESET
IC 4
DELAY (TE BOARD)

Fig. 1-12

The sync signal is extracted form the Composite Video Signal from the camera and is input as the clock signal for the IC-2A JK flip-flop.
The IC2-A output Q1 is used as the clock for IC2-B and the IC2-B outputs Q2 and $\overline{Q2}$ are NORed and fed back to the RESET terminal to construct a 1/3 counter.
As shown in the diagram below, the Q2 output is input in serial to a 4-bit shift register as data from which a parallel output is obtained.

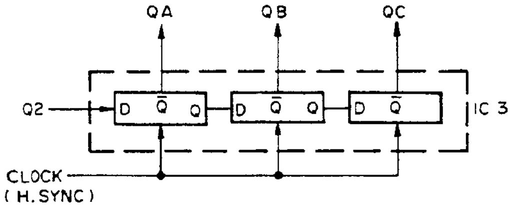

QA
QB
QC
Q2
D
Q̄
Q
IC 3
CLOCK
(H.SYNC)

Fig. 1-13

The H SYNC pulse is used as the clock and the output of the shift register is as shown below.

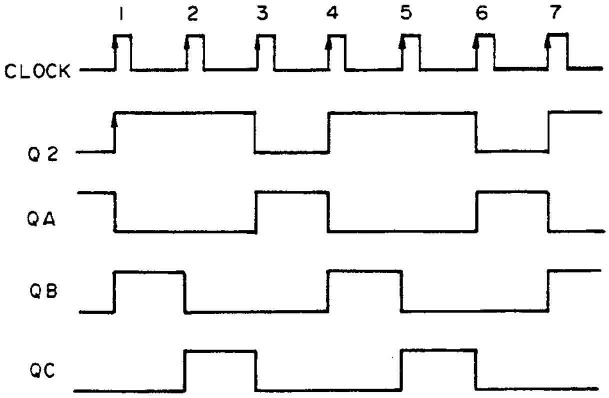

1
2
3
4
5
6
7
CLOCK
Q 2
QA
QB
QC

Fig. 1-14

Q_A, Q_B and Q_C of the diagram above are applied as the gate signals to the VIDEO SIGNAL GATE circuit so that R, G and B signals are picked up on different lines in sequence.

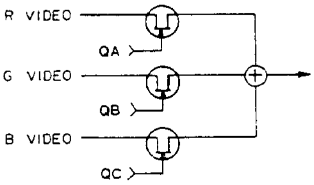

R VIDEO
QA
G VIDEO
QB
B VIDEO
QC

Fig. 1-15

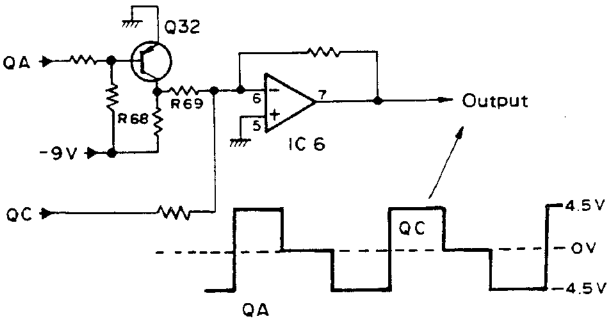

Q32
QA
R69
R68
-9V
6
5
7
IC 6
Output
QC
QC
QA
4.5V
0V
-4.5V

Fig. 1-16

On the other hand, Q_A and Q_C signals are mixed to obtain a stairstep signal, as shown below.
IC6 is an op-amp the output of which has an inverted waveform. This output signal is supplied to the WFM as a stairstep signal.

SECTION 2
DISASSEMBLY

2.1 REMOVAL OF THE TOP COVER

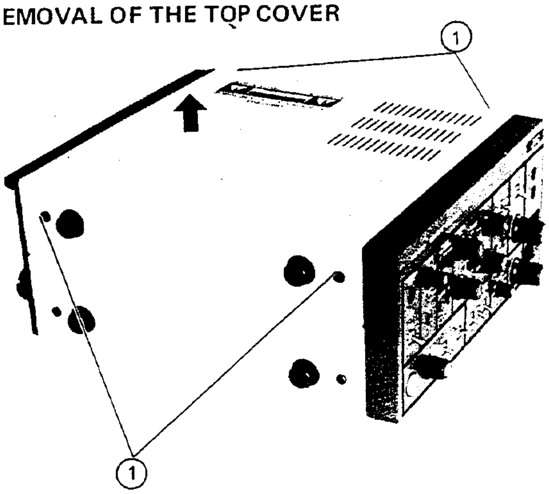


Fig. 2-1

1. Remove four screws ① on the both sides of the top cover.
2. Pull up the top cover to remove it.

2.2 REMOVAL OF THE CIRCUIT BOARD STOPPER

For the adjustment of the circuit boards, it is necessary to remove the board stopper.

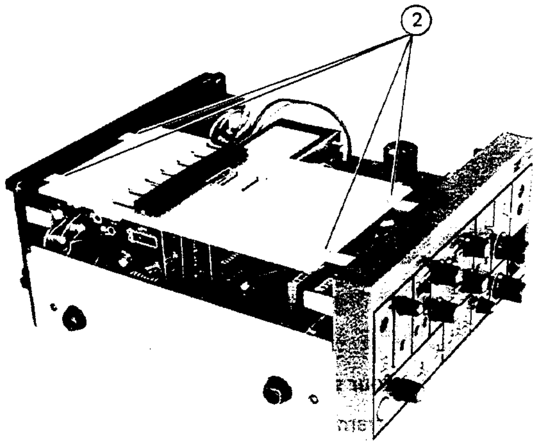


Fig. 2-2

Remove four screws ② on the front and back of the board stopper: The stopper can now be removed.

2.3 REPLACING THE FUSE AND REMOVING THE PS BOARD

When a fuse is blowm, first find the cause of the trouble; the power should be switched on only after repairing the fault.

1. The PS board is as shown in Fig. 2-3 when the top cover is removed following the description in 2-1. The PS board consists of two circuit boards one on top of the other, the upper board being a ±9 V regulator and the lower board a +5 V/140 V DC regulator.
2. Two fuses are provided for each of the upper and lower circuit boards.
3. To remove the upper board, four screws ③ shown in Fig. 2-3.

*Refer to "Section 7 ELECTRICAL PARTS LIST (PS Board)" for Fuse parts No's.

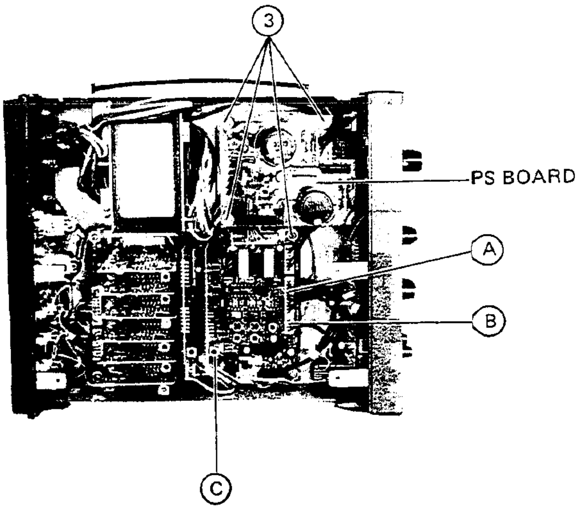


Fig. 2-3

4. To remove the lower board, remove four screws ④ using a hexagonal wrench.

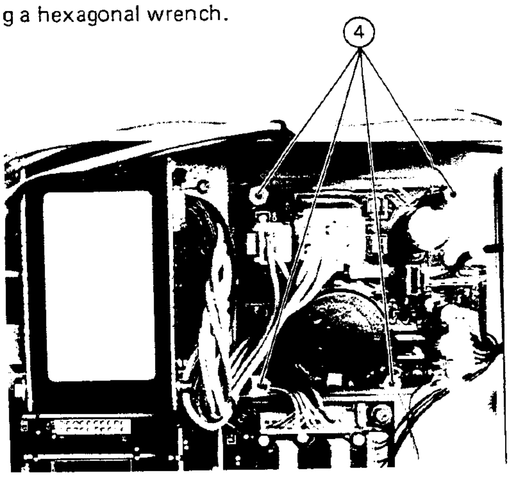


Fig. 2-4

2.4 REMOVAL OF THE CM BOARD

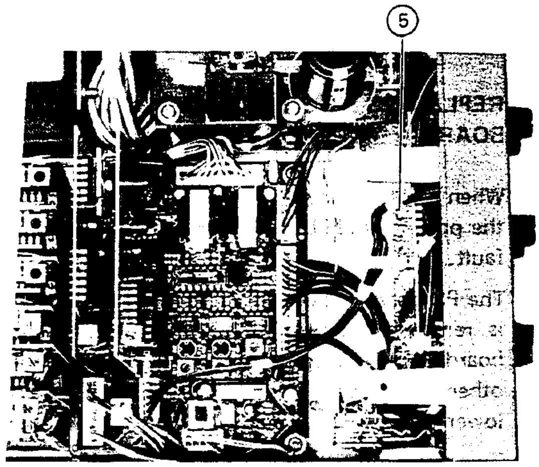


Fig. 2-5

Remove retaining screw ⑤ : The CM board can now be removed.

2.5 REMOVAL OF THE FRONT FRAME

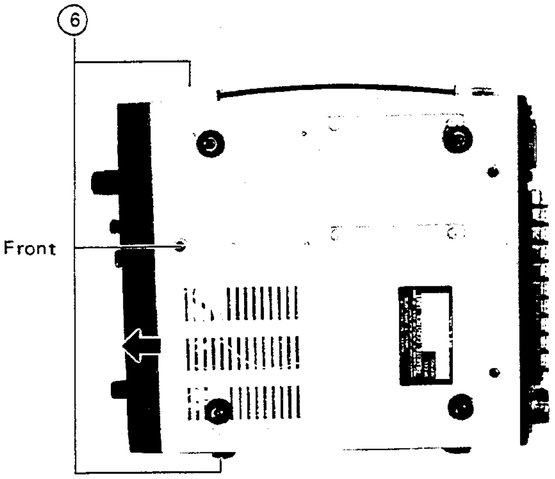


Fig. 2-6

1. Remove three screws ⑥ holding the front frame.
2. Slide out the front frame towards the front.

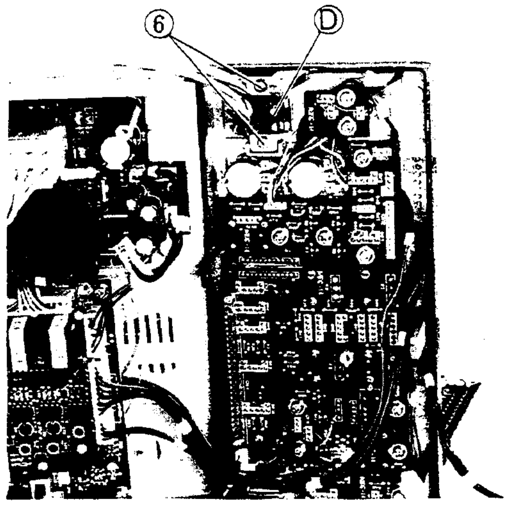


Fig. 2-7

3. Remove connectors ⒶⒷⒸ on the MT board, shown in Fig. 2-3, and two screws holding the power switch Ⓓ : The front frame can now be removed.

2.6 REMOVAL OF THE REAR FRAME

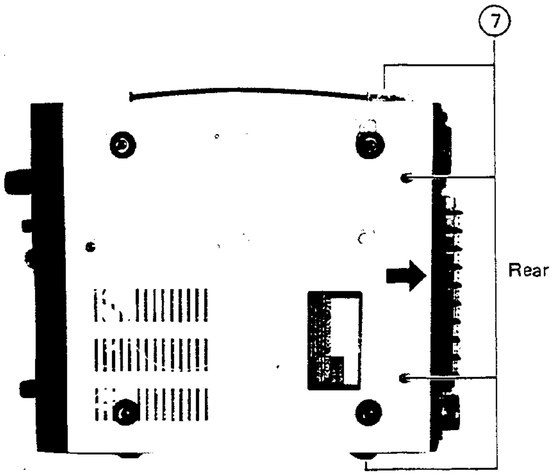


Fig. 2-8

1. Remove four screws ⑦ holding the rear frame.
2. The rear frame cannot be completely removed, but can be slid out to the rear.

SECTION 3
ADJUSTMENT PROCEDURE

3.1 INTRODUCTION

- A well-adjusted KY-950(900/310) color video camera is required to adjust the RS-500.
- Connect a camera adaptor and camera head.
- Use a VC-544 camera cable between the RS-500 and a camera adaptor.
- Set the cable length switch of the RS-500 to "20" m.
- Set the camera's power select switch to "RS".
- Set the camera's operation switch to "ON".

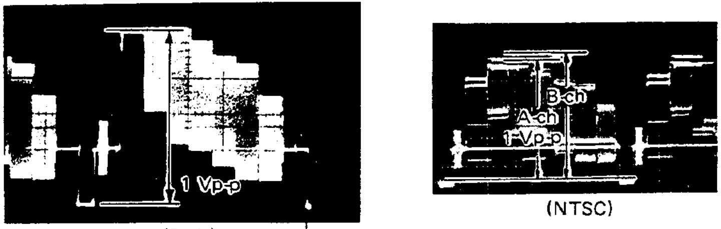
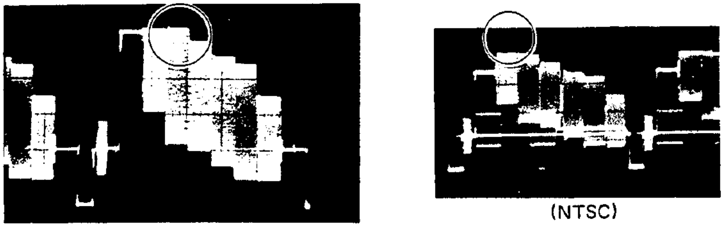
No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.2 ADJUSTMENT OF POWER SUPPLY

1	+9 V Power adjustment	Digital voltmeter	PS Board • CN25 – Pin 2 .... • R6 (+9 V)	+9 V ± 0.1 V
2	–9 V Power adjustment	Digital voltmeter	PS Board • CN25 – Pin 3 .... • R8 (–9 V)	–9 V ± 0.1 V

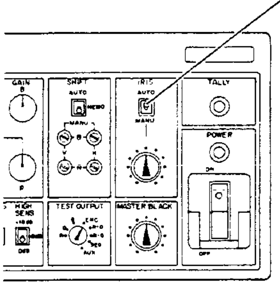
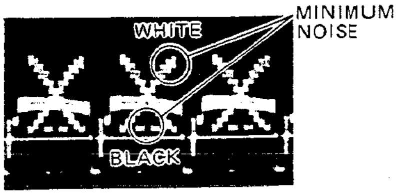
No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.2 COMPOSITE VIDEO SIGNAL (VBS) OUTPUT LEVEL ADJUSTMENT

1	DC Level adjustment	Oscilloscope: H-rate, DC	• COMPOSITE (VIDEO OUT) • DC 0 V • R40 (DC LEVEL) (VBS Board)	1) Set the OPERATION switch of KY-950/KY-900/KY-310 to "OFF". 2) Adjust the potentiometer R40 on VBS board so that the DC level is 0 V.
2	Video Signal Level adjustment	Oscilloscope: H-rate, 20 μsec (75 Ω termination)	A-ch: TEST (VIDEO OUTPUT) B-ch: COMPOSITE (VIDEO OUTPUT) • R6 (GAIN) (VBS Board)	3) Set the KY-950/900/310's OPERATION switch to "ON". 4) Set the BARS switch of RS-500 to "ON". 5) Adjust R6 (GAIN) so that the A-ch and B-ch signals are the same (1 Vp-p) as shown in Fig. 3-1 below.  (PAL) (NTSC) Fig. 3-1
3	Frequency Response	Oscilloscope: H-rate, 20 μsec (75 Ω termination)	• TEST (VIDEO OUTPUT) • C17 (HF) (BVS Board)	6) Adjust C17 (HF) so that the upper edge of the yellow bar floor signal touches the 100% line.  (PAL) (NTSC) Fig. 3-2

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.3 R/G/B SIGNAL (WITHOUT SYNC) OUTPUT LEVEL ADJUSTMENTS

1	DC Level adjustment	Oscilloscope: H-rate, DC	R-ch: R (VIDEO OUTPUT) G-ch: G (VIDEO OUTPUT) B-ch: B (VIDEO OUTPUT) • R40 (DC LEVEL) ↑ R Board G Board B Board	1) Set the KY-950/900/310's OPERATION switch to "OFF". 2) Adjust so that the DC levels are 0 V.
2	Video Signal Level Adjustment	Oscilloscope: H-rate, 20 µsec (75 Ω termination)	• COMPOSITE VIDEO OUTPUT  GAIN SHUT AUTO MEMO MANU IRIS TALLY POWER HIGH SENS OFF TEST OUTPUT MASTER BLACK	3) Set the OPERATION switch to "ON". 4) Shoot a gray scale pattern with the camera (illumination of 3 200 K). 5) Connect the composite video signal output to an oscilloscope and terminate with an impedance of 75 Ω. 6) Set the IRIS MODE switch to "AUTO".  Fig. 3-3 7) Set the RS-500's AW/AB switch to "AW" and "AB". Confirm that the waveform is as shown in Fig. 3-3. 8) Set the IRIS MODE switch to "MANU". 9) Adjust the iris control knob so that signal level becomes 1 Vp-p. 10) Adjust the MASTER BLACK knob if the level saturated or doesnot reach to 1 Vp-p.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
3	Video Signal Level adjustment	Oscilloscope: H-rate, 20 μsec (75 Ω termination)	• R6 (GAIN) ↑ R Board G Board B Board	11) Adjust so that the signal levels are Specified at each channel.

VIDEO OUTPUT	NTSC	PAL
R-ch G-ch B-ch	0.714 V	0.7 V

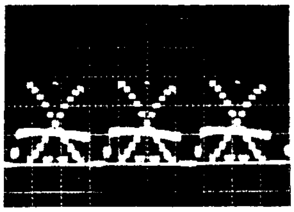
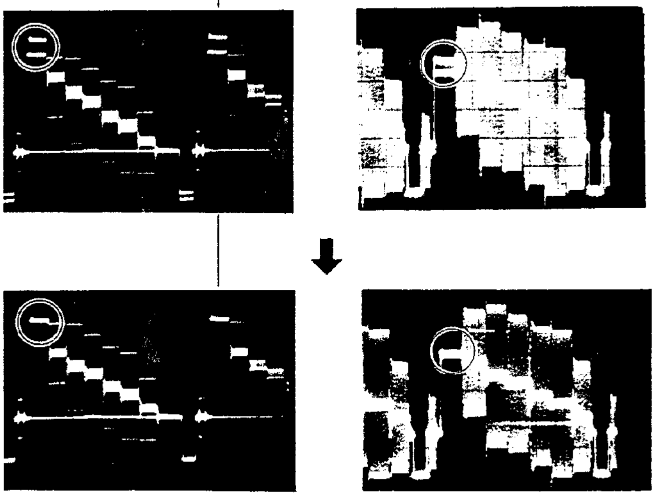


Fig. 3-4

3.4 AUX VIDEO SIGNAL INPUT LEVEL ADJUSTMENT

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
1	DC Level adjustment	Oscilloscope: H-rate, DC	AUX Board ... TP-2 • R40 (DC LEVEL) (AUX Board)	1) The AUX input terminal should be open (No input). 2) Adjust so that the DC level is 0 V.
2	Video Signal Level adjustment	Oscilloscope: H-rate, 20 μsec	A-ch: MT Board CN8 ... Pin 7 B-ch: AUX VIDEO INPUT (75 Ω Termination SW: ON) • R6 (GAIN) (AUX Board)	3) Set the BARS switch of the RS-500 to "ON". 4) Input a 1 Vp-p color bar signal from KY-950/900/310 to the AUX input terminal. 5) Adjust so that the white levels of the A-ch and B-ch are equal. (Adjust the Y levels, and not the chroma levels.)

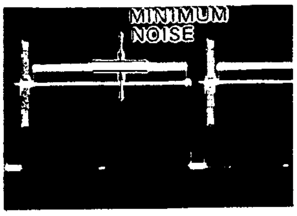
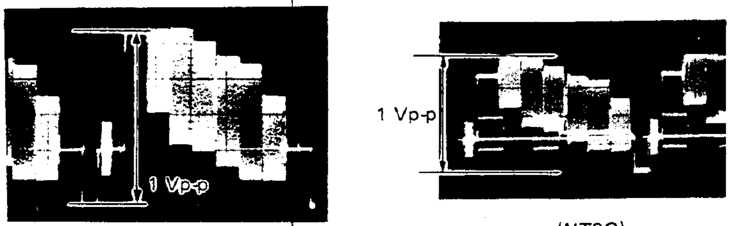


(PAL)

(NTSC)

Fig. 3-5

3.5 TEST SIGNAL OUTPUT LEVEL ADJUSTMENT

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
1	Pedestal Level Set	Oscilloscope: H-rate, 20 μsec (75 Ω termination)	TE Board . . . TP-3 R97 (R PED.) / R100 (B PED.) / (TE Board): Mimize the Black Carrier leakage	1) Input a 1 Vp-p color bar signal from the camera with a camera cable. 2) Set the TEST OUTPUT select switch to ENC (encoder signal). 3) With the lens closed (filter turret at position No. 1, or with lens cap in place), set the BARS switch to OFF. 4) Adjust so that the pedestal levels of R/G/B channels are equal.  Fig. 3-6
2	Test Output Signal Level adjustment	Oscilloscope: H-rate, 20 μsec (75 Ω termination)	TE Board . . . TP-3 R50 (GAIN) / (TE Board): 1 Vp-p	5) Set the BARS switch to ON. 6) Adjust so that the signal level is 1.0 Vp-p, as shown in Fig. 3-7.  (PAL) (NTSC) Fig. 3-7

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.6 GENLOCKING LEVEL ADJUSTMENT

<table>
<tr>
<td>1</td>
<td>Sync. Level adjustment</td>
<td>Oscilloscope:
H-rate, 20 µsec</td>
<td>MT Board . . . CN-8, Pin 8
<table>
<tr><th></th><th>NTSC</th><th>PAL</th></tr>
<tr><td>R6 (SYNC LEVEL) (GEN Board)</td><td>0.286 V</td><td>0.3 V</td></tr>
</table>
</td>
<td>1) Input a color bar signal (1.0 Vp-p) or black burst signal from a test signal generator to the RS-500 GENLOCK INPUT terminal and terminate with an impedance of 75 Ω.

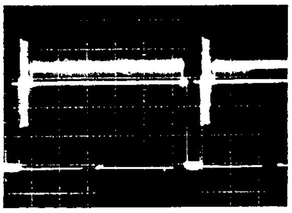



Fig. 3-8</td>
</tr>
<tr>
<td>2</td>
<td>BF adjustment</td>
<td>Oscilloscope:
H-rate, 20 µsec</td>
<td>A-ch: GENLOCK INPUT
B-ch: PH Board . . . TP-3
<table>
<tr><td>R28 (BF PHASE)</td><td>5.2 µs</td></tr>
<tr><td>R53(BF WIDTH)</td><td>3.4 µs</td></tr>
</table>
</td>
<td>1) Input a color bar signal (1.0 Vp-p) or black burst signal from a test signal generator to the RS-500 GENLOCK INPUT terminal and terminate with an impedance of 75 Ω.
2) Observing the oscilloscope, adjust so that the phase of the A-ch and B-ch are as shown in Fig. 3-10.

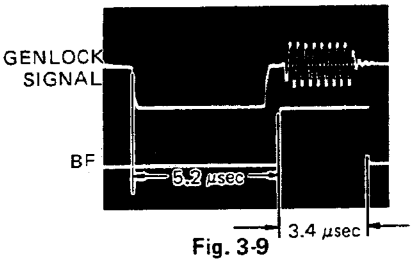



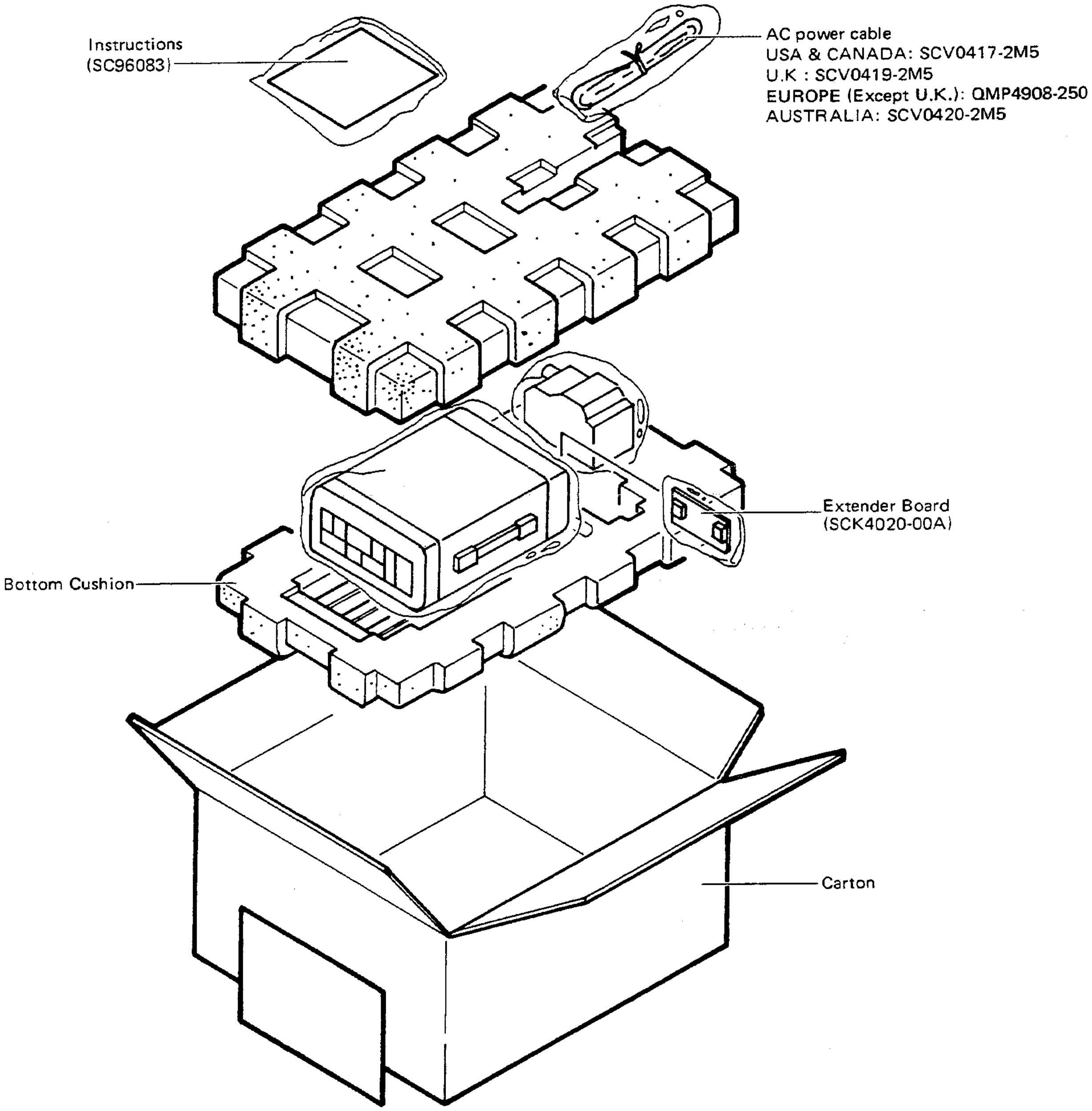
Fig. 3-9</td>
</tr>
</table>

3.7 INTERCOM LEVEL ADJUSTMENT

When using headsets, the intercom level can be adjusted by:
Camera operator: by the GAIN control on the camera adaptor,
RCU operator: by GAIN control on the RCU front panel.
Although the intercom level does not require internal adjustment, perform the following adjustment if the gain is insufficient.

1	Intercom Gain adjustment	Headset	GAIN ADJ. of Camera Operator ↓ MT Board R12 (C-EAR) GAIN ADJ. of RCU Operator ↓ MT Board R24 (R-EAR)	

SECTION 4
REPACKING


Instructions
(SC96083)
AC power cable
USA & CANADA: SCV0417-2M5
U.K : SCV0419-2M5
EUROPE (Except U.K.): QMP4908-250
AUSTRALIA: SCV0420-2M5
Extender Board
(SCK4020-00A)
Bottom Cushion
Carton

SECTION 5
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety.
Replace only with specified part numbers.

CONTENTS

Page

5.1 STANDARD PART NUMBER CODING

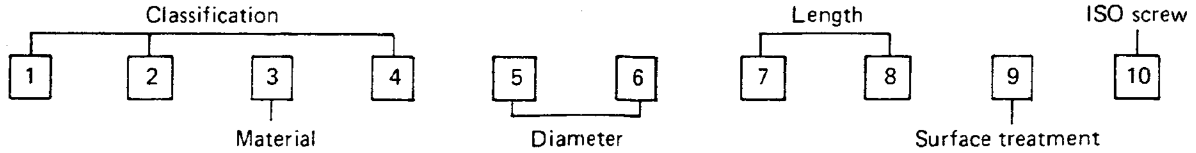
5.1.1 Screw coding .... 5 - 2

5.2 EXPLODED VIEWS AND PARTS LIST

5.2.1 Remote control unit assembly .... 5 - 3

5.1 STANDARD PART NUMBER CODING

5.1.1 Screw coding



Classification (first digit)

Symbol Letter	Name
S	Normal screw
N	Assembly screw
L	"
D	"
M	Wood screw
F	Feather screw
T	Set screw
Y	"
B	Bolt
N	Nut
W	Washer
R	E-ring
E	Eyelet
P	Spring
G	Washer head screw

Material (third digit)

Symbol Letter	Material
S	Steel
E	Stainless steel
C	Cast iron
U	Bronze
B	Brass
P	Phosphor bronze
N	German silver
Y	Brass
A	Aluminum
Z	Zinc alloy
K	Polycarbonate

Surface Treatment (ninth digit)

Symbol Letter	Surface Treatment
Z	Galvanization, dichromic acid treatment (MFZn2-C)
N	Nickel plating (MFNi2, MFNil)
R	Chrome plating (MBCr2, MBCr1)
G	Silver plating (SP4)
W	Nichrome platings
P	Phosphite treatment
B	Bronze plating

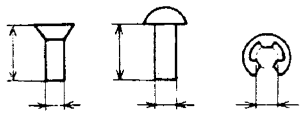
Shape of Screw Head (second digit)

Symbol Letter		Shape of Screw Head
P		Pan head
S		Flat countersunk head
H		Oval countersunk head
D		Binding head
R		Round head
B		Round head
T		Truss head

Type of Screw (fourth digit)

Symbol Letter	Type of Screw
P	Cross-Recessed head screw
A	Tapping screw
B	Special tapping screw
T	Thread rolling tapping screw
E	Special tapping screw
F	Special tapping screw

Diameter and Length of Screw (fifth – eighth digit)



– Example –

S P B P 3 0 0 6 Z S

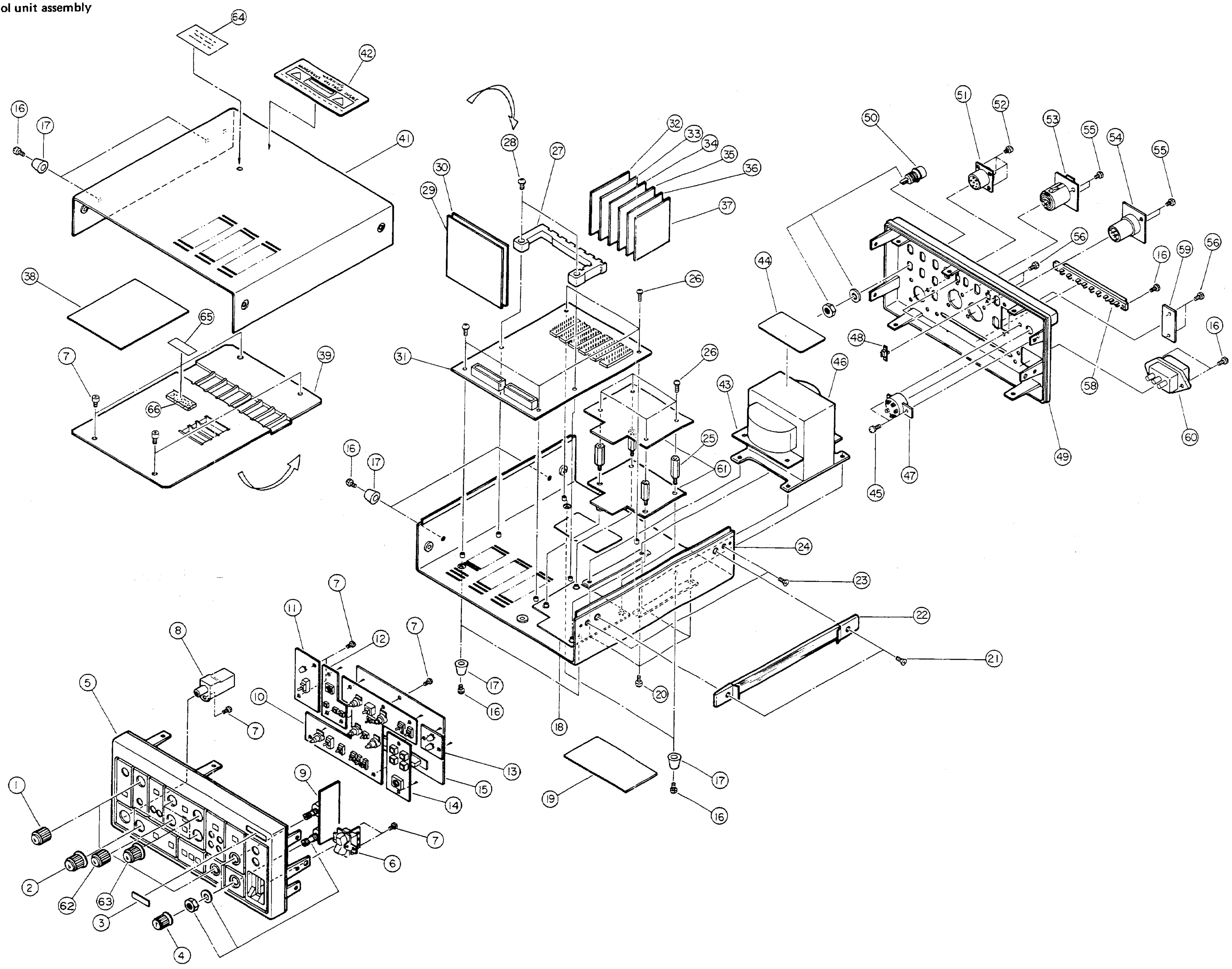
(Diameter x 10) (Length)

Diameter : 3 mm
Length : 6 mm

Symbol letter	Surface treatment
M	Black coloring after galvanization
A	Red coloring after galvanization
C	Blue coloring after galvanization
T	Green coloring after galvanization
V	Violet coloring after galvanization
F	Iron with black coloring

5.2 EXPLODED VIEWS AND PARTS LIST

5.2.1 Remote control unit assembly


64
42
16
17
41
38
65
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8
11
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14
9
7
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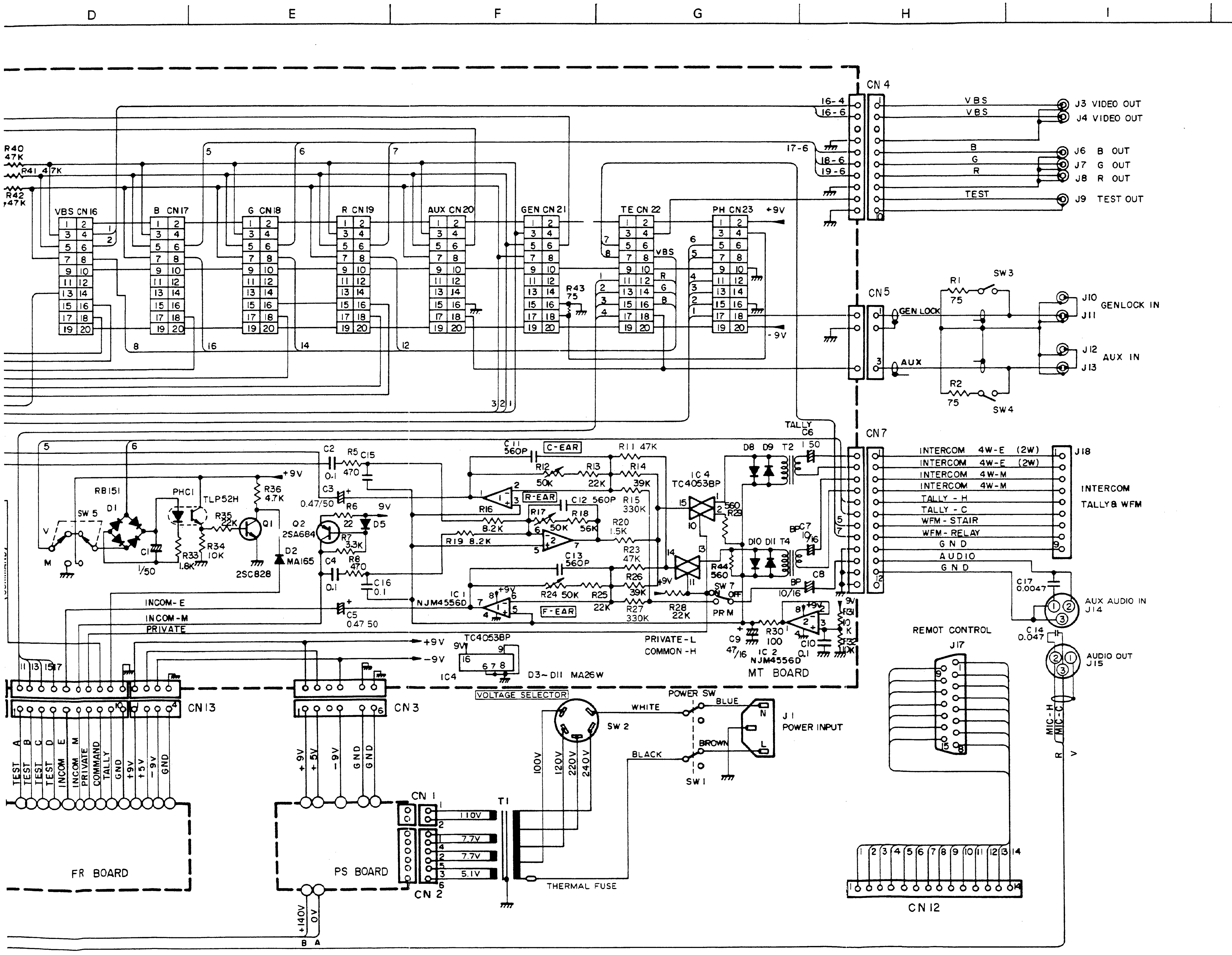
1
2
62
63
3
4

– Remote control unit assembly parts list –

Symbol No.	Part No.	Part Name	Description
1	SC41189-001	Knob	
2	SC41188-004	"	
3	Not Avaliable	JVC Logo	40407-002
4	SS43027-002	Knob	
5	SC10036-001	Front Frame	
⚠ 6	SCV0428-002	Power Switch (U)	USA and CANADA
⚠	SCV0204-002	" (E)	EUROPE
7	LPSP3006Z	Screw	M3 x 6
8	SCV0447-001	Intercom Jack	
9	Not Available	FR Board Ass'y	
10	"	"	
11	"	"	
12	"	"	
13	"	"	
14	"	"	
15	"	CM Board Ass'y	
16	SDSP3008M	Screw	M3 x 8
⚠ 17	QZF1508-003	Foot	
18	SC41167-001	Sheet	
19	Not Available	Serial No. Plate	30420
20	LPSP408Z	Screw	M4 x 8
21	SHSP4012R	"	
22	GC44869-001	Handle	
23	SSSP3006N	Screw	M3 x 6
24	SC10038-001	Bottom Cover	
25	SC41168-002	Stud	
26	DPSP3006Z	Screw	M3 x 6
⚠ 27	SC30463-001	Rail	
28	SDSP3006M	Screw	M3 x 6
29	Not Available	TE Board Ass'y	
30	"	PH Board Ass'y	
31	"	MT Board Ass'y	
32	"	GEN Board	
33	"	AUX Board	
34	"	R-ch Board	
35	"	G-ch Board	
36	"	B-ch Board	
37	"	VBS Board	
38	SC41193-001	Location Label	
39	SC30417-001	PWB Stopper	
⚠ 40	—	—	
41	SC10039-001	Upper Cover	
⚠ 42	SC41058-001	Caution Label	
43	SC41054-001	Nut	
⚠ 44	SC40637-001	Caution Label	
45	DPSP3008Z	Screw	M3 x 8
⚠ 46	SCV0452-002	Power Transformer	
⚠ 47	QSR0074-015	Voltage Selector	
48	QSS1219-101	Switch	
49	SC10037-001	Rear Frame	
50	PU48567-001	BNC Connector	Alternate with SCV0749-001
⚠ 51	SCV0448-19S	C. Connector	
52	SDSP2604M	Screw	M2.6 x 4
⚠ 53	SCV0316-03S	C. Receptacle	AUX, AUDIO Input
⚠ 54	" -03P	"	AUDIO Output
55	SPSP2606N	Screw	M2.6 x 6
56	SDSP2606M	"	"
57	—	—	
⚠ 58	SCV0086-009	Terminal	
59	SC41127-001	Blank Panel	
⚠ 60	QMC0335-002	AC Socket	
61	Not Available	PS Board Ass'y	
62	SC41188-001	Knob	Red
63	" -002	"	Blue
64	SC41261-001	Label	
65	SC41159-002	Sheft	
66	SC40162-002	Cushion	

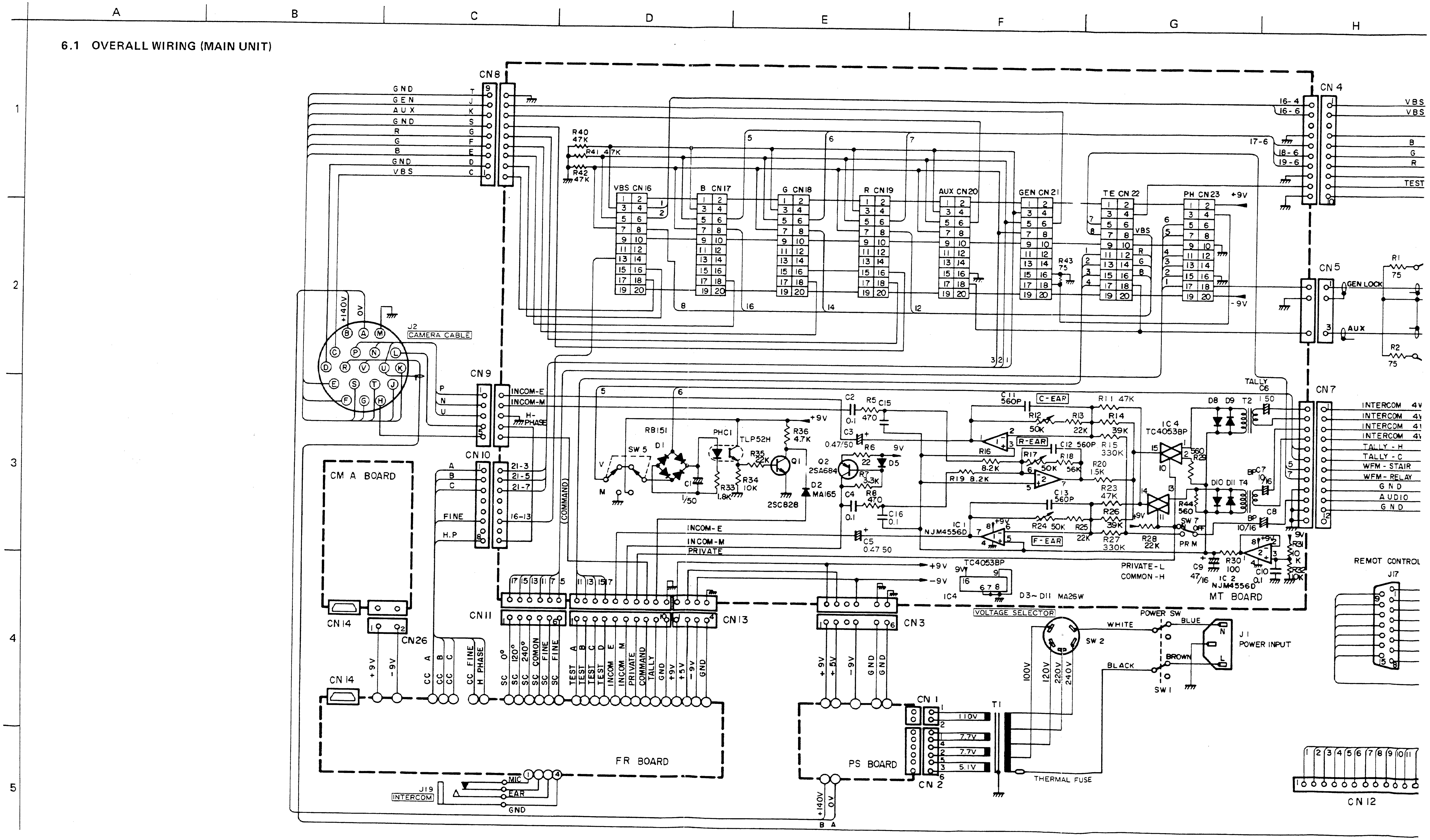
C DIAGRAMS AND CIRCUIT BOARDS


D
E
F
G
H
I
J
K
L
CN 4
VBS
J3 VIDEO OUT
J4 VIDEO OUT
B
G
R
J6 B OUT
J7 G OUT
J8 R OUT
TEST
J9 TEST OUT
16-4
16-6
17-6
18-6
19-6
R40 47K
R41 47K
R42 47K
VBS CN16
B CN17
G CN18
R CN19
AUX CN20
GEN CN21
TE CN22
PH CN23
+9V
-9V
R43 75
CN5
GEN LOCK
AUX
R1 75
SW3
J10
J11
GENLOCK IN
J12
J13
AUX IN
R2 75
SW4
TALLY C6
CN7
INTERCOM 4W-E (2W)
INTERCOM 4W-E (2W)
INTERCOM 4W-M
INTERCOM 4W-M
TALLY - H
TALLY - C
WFM - STAIR
WFM - RELAY
GND
AUDIO
GND
J18
INTERCOM
TALLY & WFM
C17 0.0047
AUX AUDIO IN J14
C14 0.047
AUDIO OUT J15
MIC-H
MIC-C
REMOT CONTROL
J17
C2 0.1
R5 470
C15
C11 560P
C-EAR
R11 47K
R12 50K
R13 22K
R14 39K
R15 330K
R16
R-EAR
R17 50K
R18 56K
C12 560P
R19 8.2K
R20 1.5K
R23 47K
C13 560P
R24 50K
R25 22K
R26 39K
R27 330K
R28 22K
F-EAR
IC1 NJM4556D
IC4 TC4053BP
D8 D9 T2 1:50
D10 D11 T4
C7 10/16
C8 10/16
R29 560
R44 560
SW7 ON OFF
PRM
PRIVATE-L
COMMON-H
C9 47/16
R30 100
IC2 NJM4556D
C10 0.1
R31 10K
MT BOARD
RB151
D1
SW5
V
M
C1 1/50
PHC1
TLP52H
R33 1.8K
R34 10K
R35 22K
R36 4.7K
Q1 2SC828
Q2 2SA684
R6 22
R7 3.3K
R8 470
D5
D2 MA165
C3 0.47/50
C4 0.1
C16 0.1
C5 0.47/50
INCOM-E
INCOM-M
PRIVATE
+9V
-9V
TC4053BP
IC4
D3~D11 MA26W
VOLTAGE SELECTOR
CN13
TEST A
TEST B
TEST C
TEST D
INCOM E
INCOM M
PRIVATE
COMMAND
TALLY
GND
+9V
+5V
-9V
GND
CN3
+9V
+5V
-9V
GND
GND
FR BOARD
PS BOARD
CN1
CN2
110V
7.7V
7.7V
5.1V
T1
THERMAL FUSE
100V
120V
220V
240V
SW2
POWER SW
WHITE
BLACK
BLUE
BROWN
SW1
J1 POWER INPUT
CN12
+140V
0V
B A

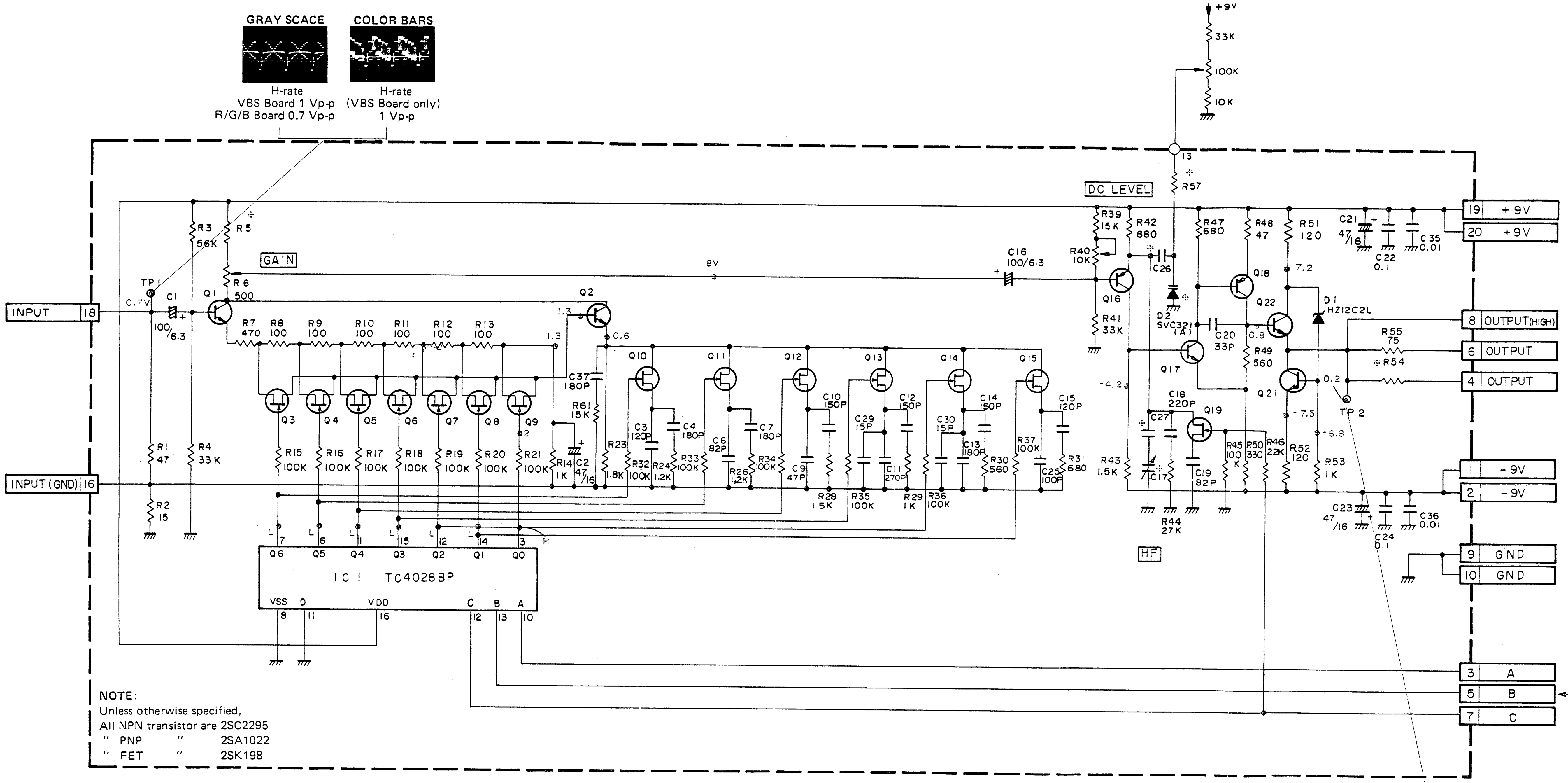
NOTE: Replacing shaded ( ) parts, be sure to use parts specified for safety purposes.

SECTION 6
SCHEMATIC DIAGRAMS AND CIRCUIT BOARDS

6.1 OVERALL WIRING (MAIN UNIT)


A
B
C
D
E
F
G
H
1
2
3
4
5
CN8
GND
GEN
AUX
GND
R
G
B
GND
VBS
T
J
K
S
G
F
E
D
C
R40 47K
R41 47K
R42 47K
VBS CN16
B CN17
G CN18
R CN19
AUX CN20
GEN CN21
TE CN22
PH CN23
+9V
-9V
R43 75
VBS
CN4
16-4
16-6
17-6
18-6
19-6
VBS
VBS
B
G
R
TEST
CN5
GEN LOCK
AUX
R1 75
R2 75
J2 CAMERA CABLE
+140V
0V
CN9
P
N
U
INCOM-E
INCOM-M
H-PHASE
CN10
A
B
C
FINE
H.P
21-3
21-5
21-7
16-13
(COMMAND)
CM A BOARD
CN14
CN26
SW5
V
M
RB151
D1
C1 1/50
PHC1
TLP52H
R33 1.8K
R34 10K
R35 22K
R36 4.7K
Q1 2SC828
D2 MA165
Q2 2SA684
C2 0.1
R5 470
C15
C3 0.47/50
R6 22
R7 3.3K
C4 0.1
R8 470
C16 0.1
D5
C5 0.47 50
INCOM-E
INCOM-M
PRIVATE
IC1 NJM4556D
R16 8.2K
R19 8.2K
C11 560P
C-EAR
R12 50K
R13 22K
R11 47K
R14 39K
R-EAR
C12 560P
R15 330K
R17 50K
R18 56K
R20 1.5K
R23 47K
C13 560P
R26 39K
R24 50K
R25 22K
R27 330K
R28 22K
F-EAR
IC4 TC4053BP
R29 560
R44 560
TALLY C6 1 50
D8
D9
T2
D10
D11
T4
C7 10/16
C8 10/16
BP
SW7
ON
OFF
PRM
PRIVATE-L
COMMON-H
C9 47/16
R30 100
IC2 NJM4556D
C10 0.1
R31 10K
R32 10K
MT BOARD
CN7
INTERCOM 4V
INTERCOM 4V
INTERCOM 4V
INTERCOM 4V
TALLY - H
TALLY - C
WFM - STAIR
WFM - RELAY
GND
AUDIO
GND
+9V
-9V
TC4053BP
IC4
D3~D11 MA26W
VOLTAGE SELECTOR
CN11
CN13
CN3
+9V
-9V
CC A
CC B
CC C
CC FINE
H PHASE
SC 0°
SC 120°
SC 240°
SC COMON
SC FINE
SC FINE
TEST A
TEST B
TEST C
TEST D
INCOM E
INCOM M
PRIVATE
COMMAND
TALLY
GND
+9V
+5V
-9V
GND
+9V
+5V
-9V
GND
GND
FR BOARD
PS BOARD
CN1
CN2
T1
110V
7.7V
7.7V
5.1V
THERMAL FUSE
+140V
0V
B
A
SW2
100V
120V
220V
240V
POWER SW
WHITE
BLACK
BLUE
BROWN
SW1
J1 POWER INPUT
N
L
REMOT CONTROL
J17
CN12
J19 INTERCOM
MIC
EAR
GND

6.2 VBS/B/G/R BOARDS SCHEMATIC DIAGRAM


A
B
C
D
E
F
G
H
1
2
3
4
5
6
GRAY SCACE
COLOR BARS
H-rate
VBS Board 1 Vp-p
R/G/B Board 0.7 Vp-p
H-rate
(VBS Board only)
1 Vp-p
+9V
33K
100K
10K
13
R57
DC LEVEL
GAIN
8V
INPUT 18
INPUT (GND) 16
TP1
0.7V
C1
100/6.3
Q1
R3 56K
R5
R6 500
R7 470
R8 100
R9 100
R10 100
R11 100
R12 100
R13 100
Q2
1.3
0.6
C37 180P
R61 15K
R14 1K
C2 47/16
R23 1.8K
Q3
Q4
Q5
Q6
Q7
Q8
Q9
R15 100K
R16 100K
R17 100K
R18 100K
R19 100K
R20 100K
R21 100K
R1 47
R2 15
R4 33K
Q10
Q11
Q12
Q13
Q14
Q15
C3 120P
C4 180P
R32 100K
R24 1.2K
R33 100K
C6 82P
R26 1.2K
C7 180P
R34 100K
C9 47P
C10 150P
R28 1.5K
C29 15P
R35 100K
C11 270P
C12 150P
R29 1K
C30 15P
R36 100K
C13 180P
R30 560
C14 150P
R37 100K
C25 100P
C15 120P
R31 680
L
H
Q6 Q5 Q4 Q3 Q2 Q1 Q0
IC1 TC4028BP
VSS D VDD C B A
8 11 16 12 13 10
C16 100/6.3
R39 15K
R40 10K
R41 33K
Q16
R42 680
C26
D2 SVC321(A)
C20 33P
Q17
Q18
R47 680
R48 47
R49 560
Q22
7.2
0.8
-4.2
C18 220P
Q19
C27
C17
C19 82P
R43 1.5K
R44 27K
HF
R45 100K
R50 330
R46 22K
Q21
R52 120
R51 120
D1 HZ12C2L
R55 75
R54
0.2
-7.5
-6.8
TP2
R53 1K
C21 47/16
C22 0.1
C35 0.01
C23 47/16
C24 0.1
C36 0.01
19 +9V
20 +9V
8 OUTPUT(HIGH)
6 OUTPUT
4 OUTPUT
1 -9V
2 -9V
9 GND
10 GND
3 A
5 B
7 C

NOTE:
Unless otherwise specified,
All NPN transistor are 2SC2295
" PNP " 2SA1022
" FET " 2SK198

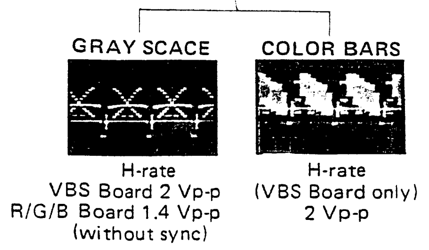
CN

+9 V	20	19	+9 V
INPUT(H)	18	17	
INPUT(C)	16	15	
	14	13	C. COMPEN FINE
	12	11	"
GND	10	9	GND
OUTPUT(HIGH)	8	7	C
OUTPUT	6	5	B
OUTPUT	4	3	A
−9 V	2	1	−9 V

✣	VBS	R/G/B
R5	470	220
R54	75	–
R57	100 K	–
D2	SVC321(A)	–
C17	–	60 P
C26	150 P	–
C27	–	Shorted

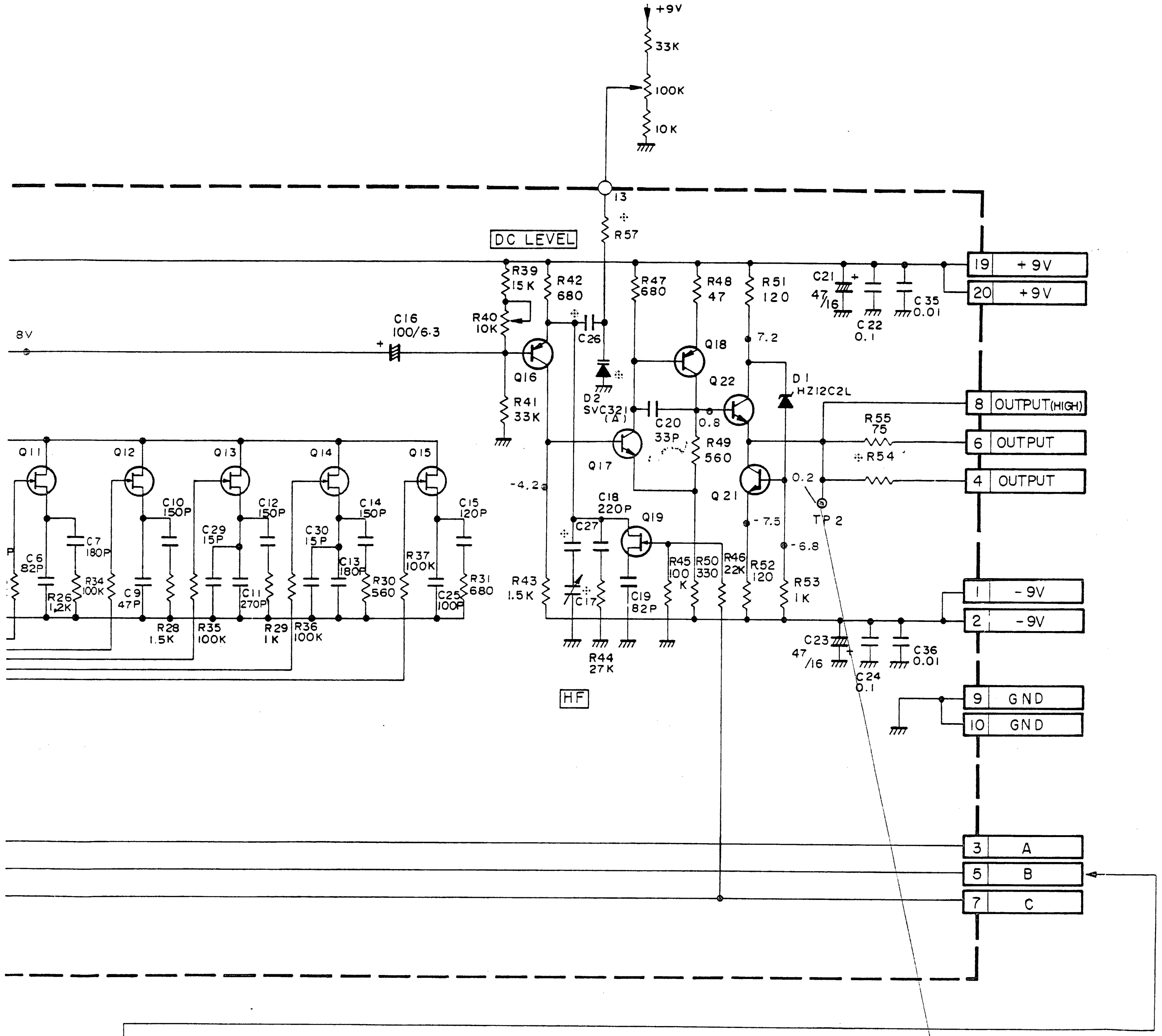
x10m	2	7	12	17	22	27	32
A	L	H	L	H	L	H	L
B	L	L	H	H	L	L	H
C	L	L	L	L	H	H	H

CABLE



H-rate
VBS Board 2 Vp-p
R/G/B Board 1.4 Vp-p
(without sync)

H-rate
(VBS Board only)
2 Vp-p

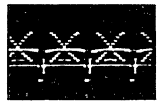

+9V
33K
100K
10K
13
R57
DC LEVEL
R39 15K
R40 10K
R41 33K
R42 680
C26
D2 SVC321 (A)
Q16
Q17
Q18
Q19
Q21
Q22
R47 680
R48 47
R51 120
7.2
D1 HZ12C2L
C20 33P
0.8
R49 560
R55 75
R54
0.2
TP 2
-7.5
-6.8
-4.2
C16 100/6.3
8V
C21 47/16
C22 0.1
C35 0.01
C18 220P
C27
C17
C19 82P
R43 1.5K
R44 27K
R45 100
R50 330
R46 22K
R52 120
R53 1K
C23 47/16
C24 0.1
C36 0.01
HF
Q11
Q12
Q13
Q14
Q15
C6 82P
C7 180P
R26 1.2K
R34 100K
C9 47P
C10 150P
R28 1.5K
C29 15P
C11 270P
R35 100K
C12 150P
R29 1K
C30 15P
C13 180P
R36 100K
C14 150P
R30 560
R37 100K
C15 120P
C25 100P
R31 680
19 +9V
20 +9V
8 OUTPUT(HIGH)
6 OUTPUT
4 OUTPUT
1 -9V
2 -9V
9 GND
10 GND
3 A
5 B
7 C

R/G/B
220
–
–
–
60 P
–
Shorted

x10m	2	7	12	17	22	27	32
A	L	H	L	H	L	H	L
B	L	L	H	H	L	L	H
C	L	L	L	L	H	H	H

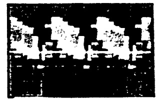
CABLE

GRAY SCACE



H-rate
VBS Board 2 Vp-p
R/G/B Board 1.4 Vp-p
(without sync)

COLOR BARS

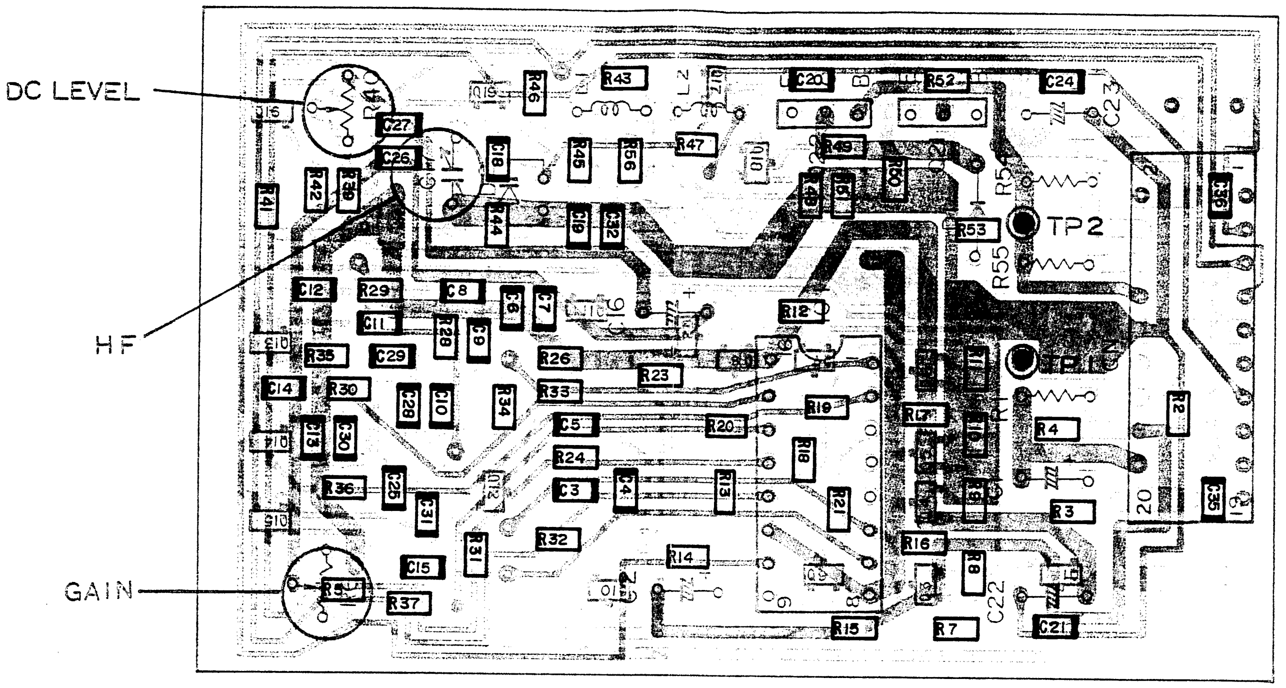


H-rate
(VBS Board only)
2 Vp-p

6.3 VBS/B/G/R CIRCUIT BOARD

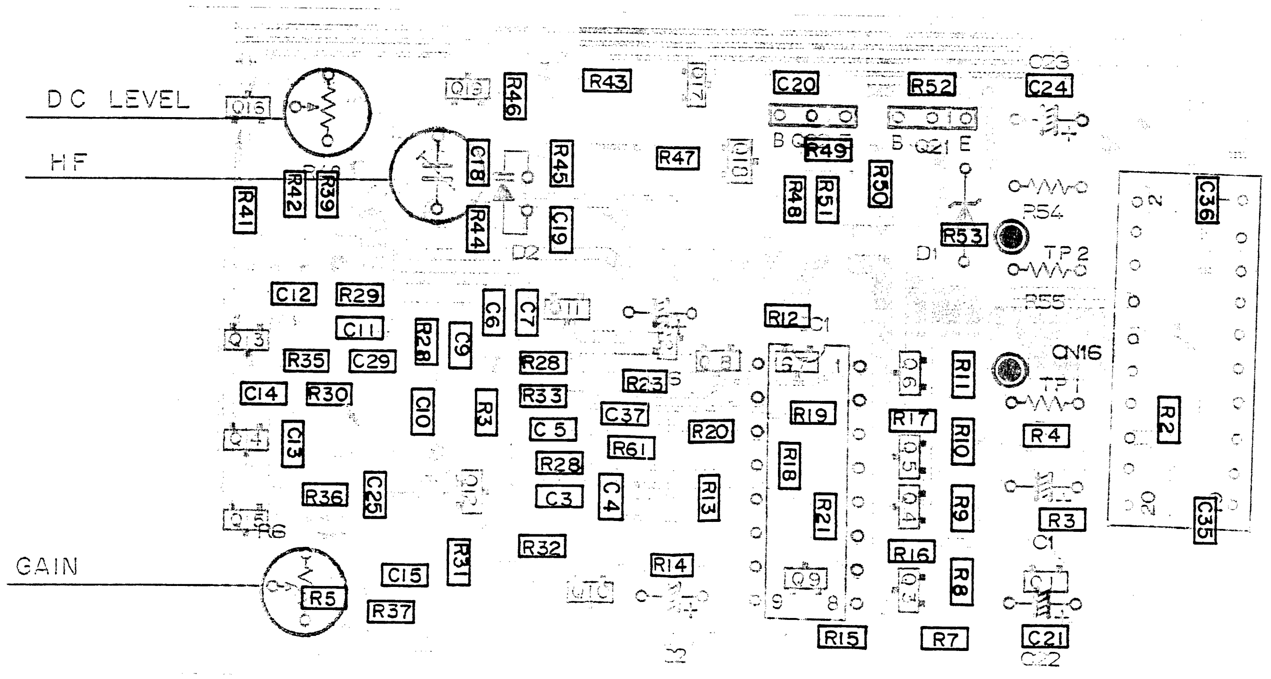
NOTE: Serial No's 1795XXXX and before

– FORMER UNIT –

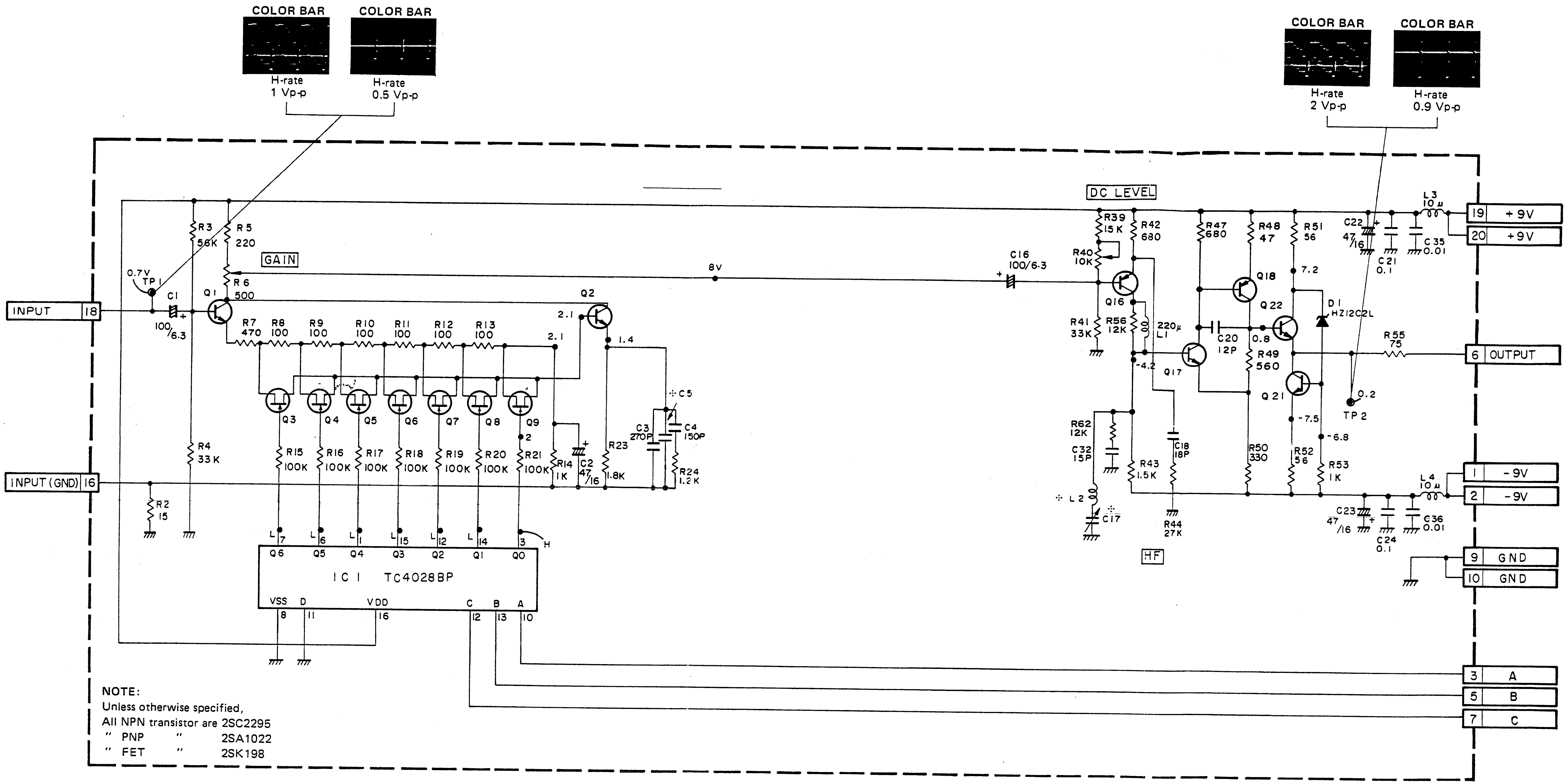

DC LEVEL
HF
GAIN
TP2
TP1
R40
R5
R55
20

NOTE: Serial No's 0605XXXX and after

– LATER UNIT –


DC LEVEL
HF
GAIN
R46
R43
C20
R52
C23
C24
R41
R42
R39
C18
R44
R45
C19
D2
R47
R49
R48
R51
R50
R53
D1
R54
TP 2
R55
CN16
TP 1
C36
C12
R29
C11
R28
C9
C6
C7
R12
R35
C29
R28
R23
R11
C14
R30
C10
R3
R33
C37
R19
R17
R10
R4
R2
C13
C5
R61
R20
R18
R9
R36
C25
R28
C3
C4
R13
R21
R3
C35
R32
R14
R16
R8
R6
R5
C15
R37
R31
Q9
R15
R7
C21
C22
C1
20

6.4 AUX/GEN BOARDS SCHEMATIC DIAGRAM


COLOR BAR
H-rate
1 Vp-p
COLOR BAR
H-rate
0.5 Vp-p
COLOR BAR
H-rate
2 Vp-p
COLOR BAR
H-rate
0.9 Vp-p
INPUT 18
INPUT (GND) 16
0.7V TP1
C1 100/6.3
R2 15
R3 56K
R4 33 K
R5 220
R6 500
GAIN
Q1
Q2
2.1
1.4
R7 470
R8 100
R9 100
R10 100
R11 100
R12 100
R13 100
Q3 Q4 Q5 Q6 Q7 Q8 Q9
R15 100K
R16 100K
R17 100K
R18 100K
R19 100K
R20 100K
R21 100K
R14 1K
C2 47/16
R23 1.8K
C3 270P
C4 150P
C5
R24 1.2K
IC1 TC4028BP
Q6 Q5 Q4 Q3 Q2 Q1 Q0
VSS D VDD C B A
8 11 16 12 13 10
L H
8V
C16 100/6-3
DC LEVEL
R39 15K
R40 10K
R41 33K
R42 680
R56 12K
220µ L1
Q16
Q17
-4.2
R47 680
R48 47
R51 56
Q18
Q22
Q21
7.2
C20 12P
0.8
R49 560
D1 HZ12C2L
R55 75
R50 330
R52 56
R53 1K
-7.5
-6.8
0.2
TP2
R62 12K
C32 15P
L2
C17
R43 1.5K
C18 18P
R44 27K
HF
C22 47/16
C21 0.1
C35 0.01
L3 10µ
C23 47/16
C24 0.1
C36 0.01
L4 10µ
19 +9V
20 +9V
6 OUTPUT
1 -9V
2 -9V
9 GND
10 GND
3 A
5 B
7 C

NOTE:
Unless otherwise specified,
All NPN transistor are 2SC2295
" PNP " 2SA1022
" FET " 2SK198

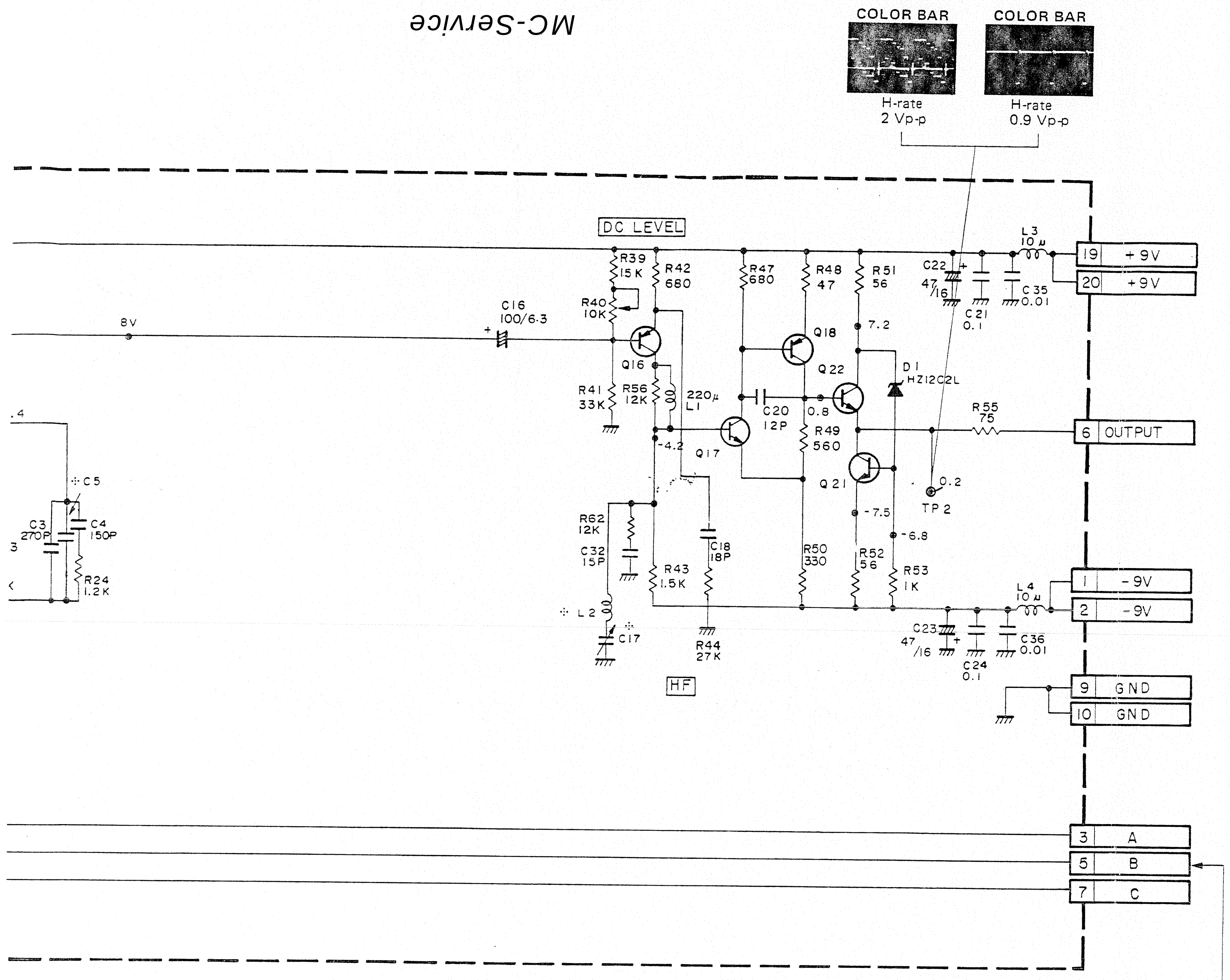
CN

+9 V	20	19	+9 V
INPUT(H)	18	17	
INPUT(C)	16	15	
	14	13	C. COMPEN FINE
	12	11	"
GND	10	9	GND
OUTPUT(HIGH)	8	7	C
OUTPUT	6	5	B
OUTPUT	4	3	A
−9 V	2	1	−9 V

÷	AUX	GEN
C5	33 P	–
C17	25 P	–
L2	100 µ	–

x10m	2	7	12	17	22	27	32
A	L	H	L	H	L	H	L
B	L	L	H	H	L	L	H
C	L	L	L	L	H	H	H

CABLE


COLOR BAR
H-rate
2 Vp-p
COLOR BAR
H-rate
0.9 Vp-p
DC LEVEL
R39 15K
R42 680
R40 10K
R47 680
R48 47
R51 56
C22 47/16
C21 0.1
C35 0.01
L3 10µ
19 +9V
20 +9V
8V
C16 100/6.3
Q16
Q18
7.2
D1 HZ12C2L
Q22
R41 33K
R56 12K
220µ L1
C20 12P
0.8
R49 560
R55 75
6 OUTPUT
-4.2
Q17
Q21
0.2
TP2
-7.5
-6.8
C5
C3 270P
C4 150P
R24 1.2K
R62 12K
C32 15P
C18 18P
R43 1.5K
R50 330
R52 56
R53 1K
L4 10µ
1 -9V
2 -9V
L2
C17
R44 27K
C23 47/16
C24 0.1
C36 0.01
HF
9 GND
10 GND
3 A
5 B
7 C

⁘	AUX	GEN
C5	33 P	–
C17	25 P	–
L2	100 µ	–

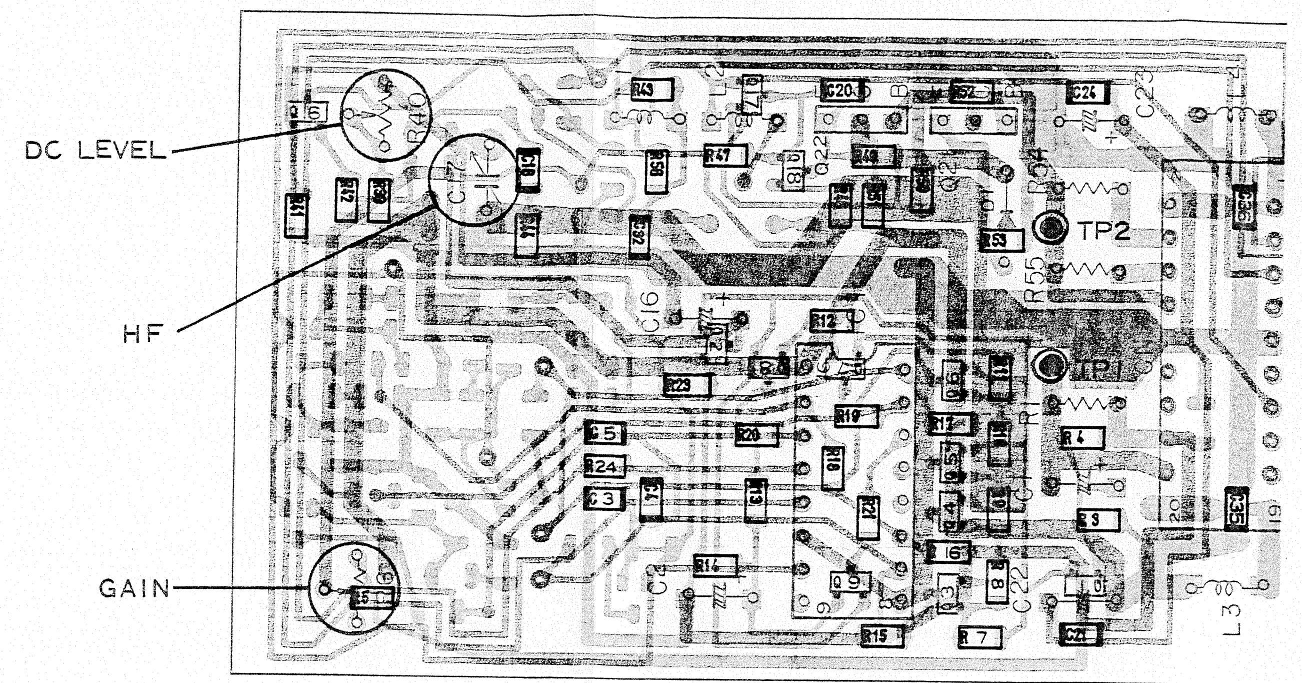
x10m	2	7	12	17	22	27	32
A	L	H	L	H	L	H	L
B	L	L	H	H	L	L	H
C	L	L	L	L	H	H	H

CABLE

6.5 AUX/GEN CIRCUIT BOARD

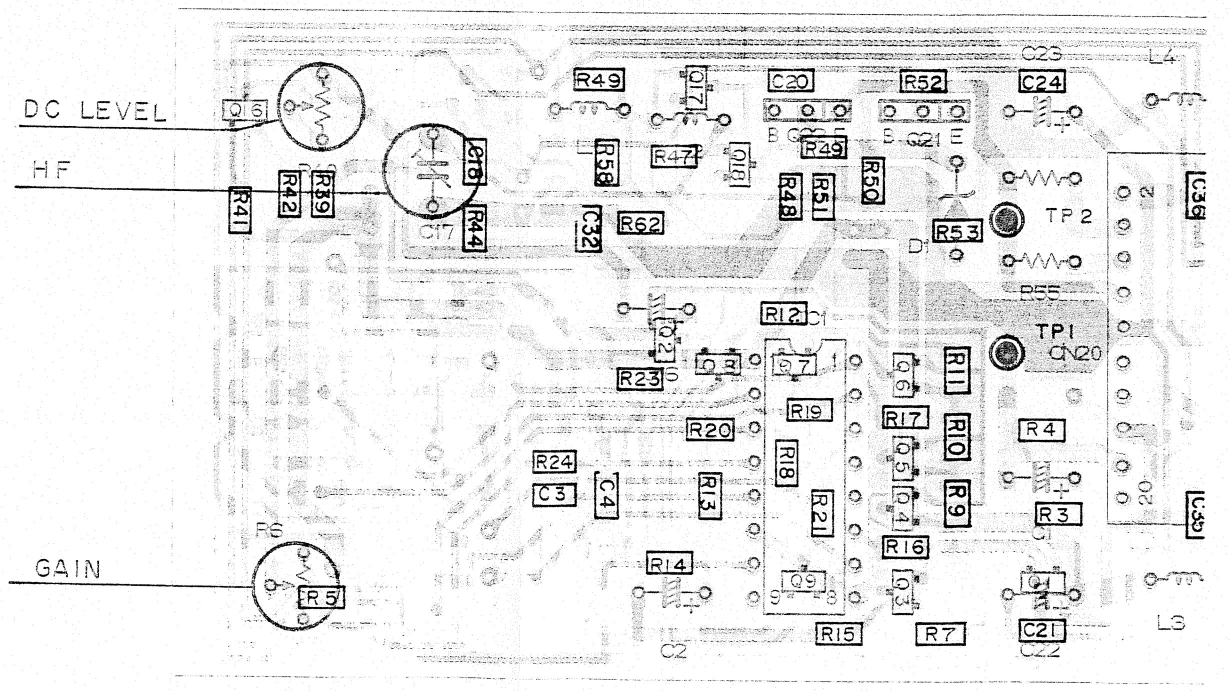
NOTE: Serial No's 1795XXXX and before

– FORMER UNIT –

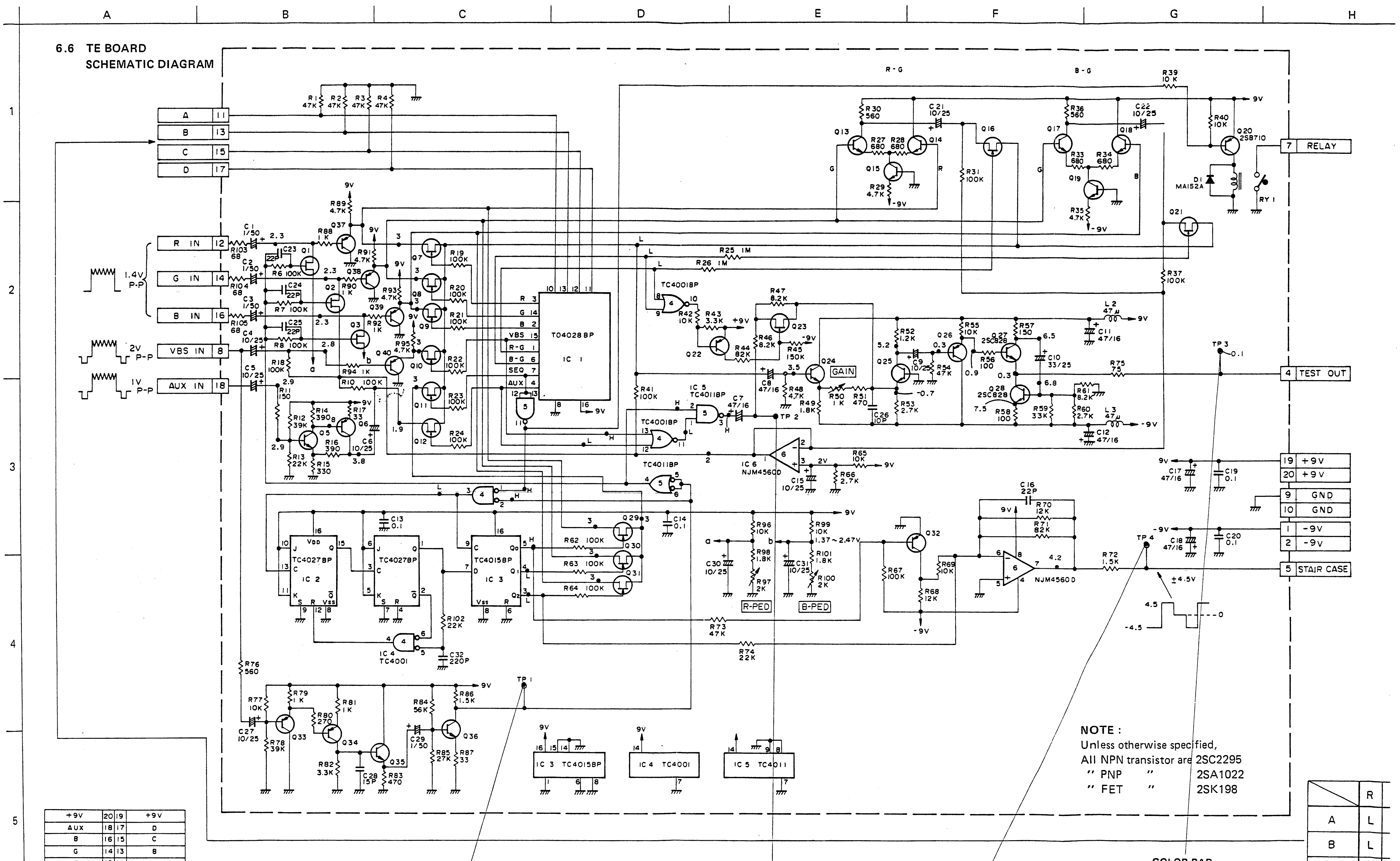

DC LEVEL
HF
GAIN
TP2
TP1
R55
C16
C22
L3
R4
R40
C17

NOTE: Serial No's 0605XXXX and after

– LATER UNIT –


DC LEVEL
HF
GAIN
R49
C20
R52
C24
C23
L4
R58
R47
R48
R51
R50
R39
R42
R41
R44
C17
C32
R62
R53
TP 2
TP1
CN20
R12
R23
R11
R10
R4
R19
R17
R20
R18
R24
C3
C4
R13
R21
R9
R16
R3
R6
R5
R14
Q9
R15
R7
C21
C22
C2
L3
C36
C35

6.6 TE BOARD SCHEMATIC DIAGRAM


A
B
C
D
E
F
G
H
1
2
3
4
5
6
A 11
B 13
C 15
D 17
R IN 12
G IN 14
B IN 16
VBS IN 8
AUX IN 18
1.4V P-P
2V P-P
1V P-P
R1 47K
R2 47K
R3 47K
R4 47K
C1 1/50
C2 1/50
C3 1/50
C4 10/25
C5 10/25
R103 68
R104 68
R105 68
C23 22P
C24 22P
C25 22P
R6 100K
R7 100K
R8 100K
R18 100K
R11 150
R12 39K
R13 22K
R14 390
R15 330
R16 390
R17 33
C6 10/25
R88 1K
R89 4.7K
R90 1K
R91 4.7K
R92 1K
R93 4.7K
R94 1K
R95 4.7K
R10 100K
R19 100K
R20 100K
R21 100K
R22 100K
R23 100K
R24 100K
Q1
Q2
Q3
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q37
Q38
Q39
Q40
T04028BP
IC 1
R 3
G 14
B 2
VBS 15
R-G 1
B-G 6
SEQ 7
AUX 4
TC4001BP
TC4011BP
IC 5
R25 1M
R26 1M
R41 100K
R42 10K
R43 3.3K
R44 82K
R45 150K
R46 8.2K
R47 8.2K
R48 4.7K
R49 1.8K
C7 47/16
C8 47/16
Q22
Q23
Q24
GAIN
R50 1K
R51 470
C26 10P
R52 1.2K
R53 2.7K
R54 47K
C9 10/25
Q25
Q26
Q27 2SC828
Q28 2SC828
R55 10K
R56 100
R57 150
R58 100
R59 33K
R60 2.7K
R61 8.2K
C10 33/25
C11 47/16
C12 47/16
L2 47μ
L3 47μ
R75 75
TP 3
TP 2
4 TEST OUT
IC 6 NJM4560D
C15 10/25
R65 10K
R66 2.7K
R-G
B-G
R30 560
R27 680
R28 680
R29 4.7K
C21 10/25
Q13
Q14
Q15
Q16
R31 100K
R36 560
R33 680
R34 680
R35 4.7K
C22 10/25
Q17
Q18
Q19
Q21
R37 100K
R39 10K
R40 10K
Q20 2SB710
D1 MA152A
RY 1
7 RELAY
C17 47/16
C19 0.1
19 +9V
20 +9V
9 GND
10 GND
1 -9V
2 -9V
C18 47/16
C20 0.1
5 STAIR CASE
TC4027BP
IC 2
TC4015BP
IC 3
IC 4 TC4001
C13 0.1
C14 0.1
R62 100K
R63 100K
R64 100K
Q29
Q30
Q31
R102 22K
C32 220P
R73 47K
R74 22K
R96 10K
R97 2K
R98 1.8K
R99 10K
R100 2K
R101 1.8K
C30 10/25
C31 10/25
R-PED
B-PED
1.37~2.47V
Q32
R67 100K
R68 12K
R69 10K
C16 22P
R70 12K
R71 82K
NJM4560D
R72 1.5K
TP 4
±4.5V
4.5
-4.5
0
R76 560
R77 10K
R78 39K
R79 1K
R80 270
R81 1K
R82 3.3K
R83 470
R84 56K
R85 27K
R86 1.5K
R87 33
C27 10/25
C28 15P
C29 1/50
Q33
Q34
Q35
Q36
TP 1
IC 3 TC4015BP
IC 4 TC4001
IC 5 TC4011
9V
-9V

NOTE :

Unless otherwise specified,

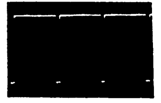
All NPN transistor are 2SC2295

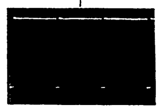
" PNP " 2SA1022

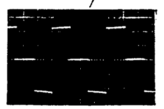
" FET " 2SK198

+9V	20	19	+9V
AUX	18	17	D
B	16	15	C
G	14	13	B
R	12	11	A
GND	10	9	GND
VBC	8	7	RELAL
———	6	5	STAIR CASE
TEST OUT	4	3	———
-9V	2	1	-9V

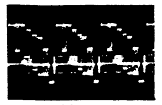
	R
A	L
B	L
C	L
D	L

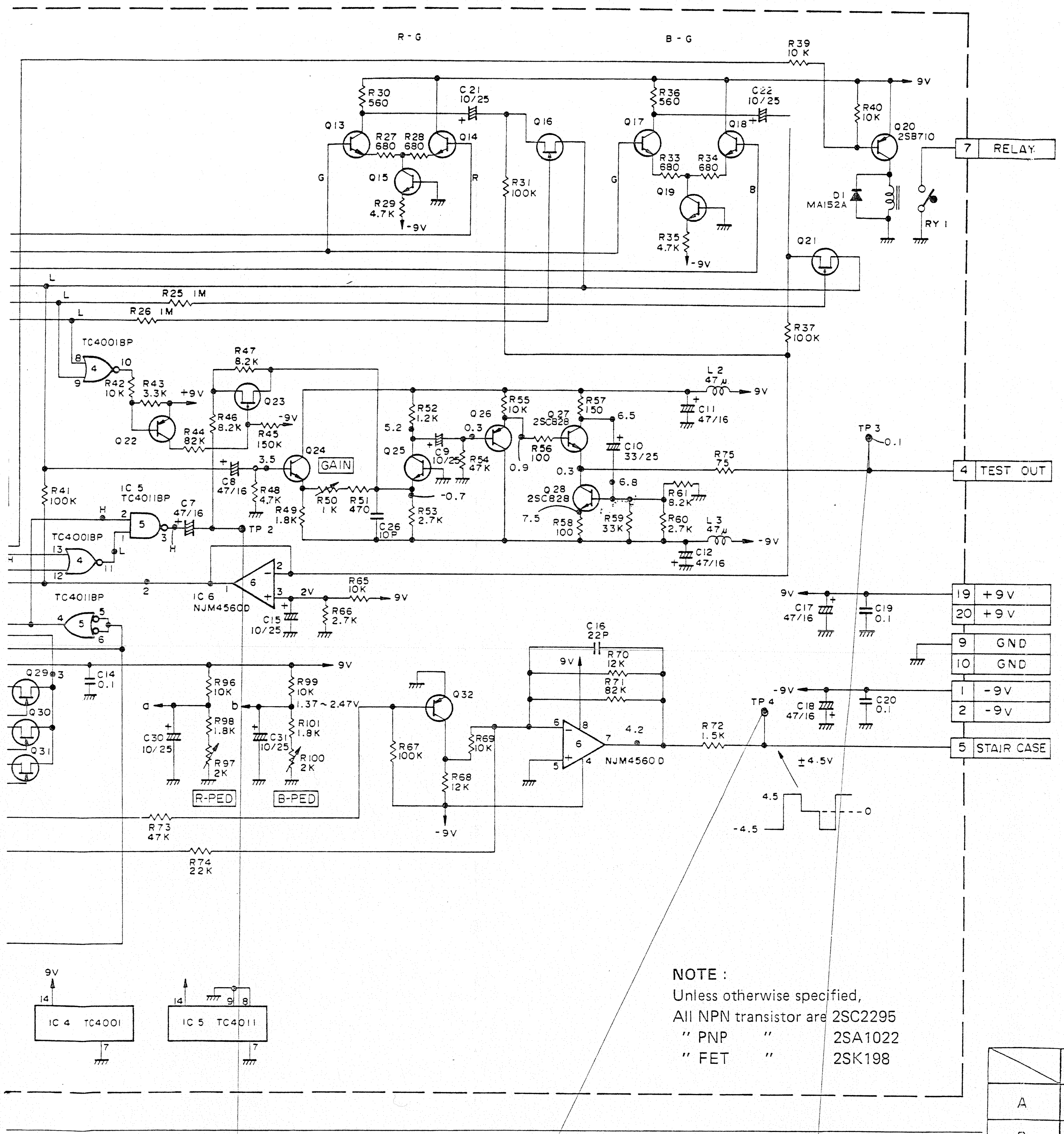

H-rate
9 Vp-p


H-rate
9.5 Vp-p

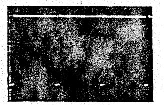

H-rate
9 Vp-p

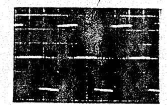
COLOR BAR


H-rate
2 Vp-p


R-G
B-G
R39 10K
9V
R30 560
C21 10/25
R36 560
C22 10/25
R40 10K
Q20 2SB710
Q13
R27 680
R28 680
Q14
Q16
Q17
R33 680
R34 680
Q18
7 RELAY
Q15
R29 4.7K
-9V
R31 100K
Q19
R35 4.7K
D1 MA152A
RY 1
Q21
R25 1M
R26 1M
R37 100K
TC4001BP
R42 10K
R43 3.3K
+9V
R47 8.2K
Q23
Q22
R44 82K
R46 8.2K
R45 150K
Q24
GAIN
R52 1.2K
Q26
R55 10K
Q27 2SC828
R57 150
L2 47µ
C11 47/16
TP 3
0.1
R75 75
4 TEST OUT
Q25
C9 10/25
R54 47K
R56 100
C10 33/25
Q28 2SC828
R61 8.2K
R59 33K
R60 2.7K
R58 100
L3 47µ
C12 47/16
R41 100K
IC 5 TC4011BP
C7 47/16
C8 47/16
R48 4.7K
R49 1.8K
R50 1K
R51 470
C26 10P
R53 2.7K
TP 2
IC 6 NJM4560D
R65 10K
R66 2.7K
C15 10/25
C17 47/16
C19 0.1
19 +9V
20 +9V
9 GND
10 GND
1 -9V
2 -9V
5 STAIR CASE
Q29
Q30
Q31
C14 0.1
R96 10K
R99 10K
1.37~2.47V
C30 10/25
R98 1.8K
R97 2K
C31 10/25
R101 1.8K
R100 2K
R-PED
B-PED
Q32
R67 100K
R69 10K
R68 12K
C16 22P
R70 12K
R71 82K
NJM4560D
R72 1.5K
TP 4
C18 47/16
C20 0.1
±4.5V
4.5
-4.5
R73 47K
R74 22K
IC 4 TC4001
IC 5 TC4011

NOTE :
Unless otherwise specified,
All NPN transistor are 2SC2295
" PNP " 2SA1022
" FET " 2SK198


H-rate
9.5 Vp-p


H-rate
9 Vp-p

COLOR BAR

H-rate
2 Vp-p

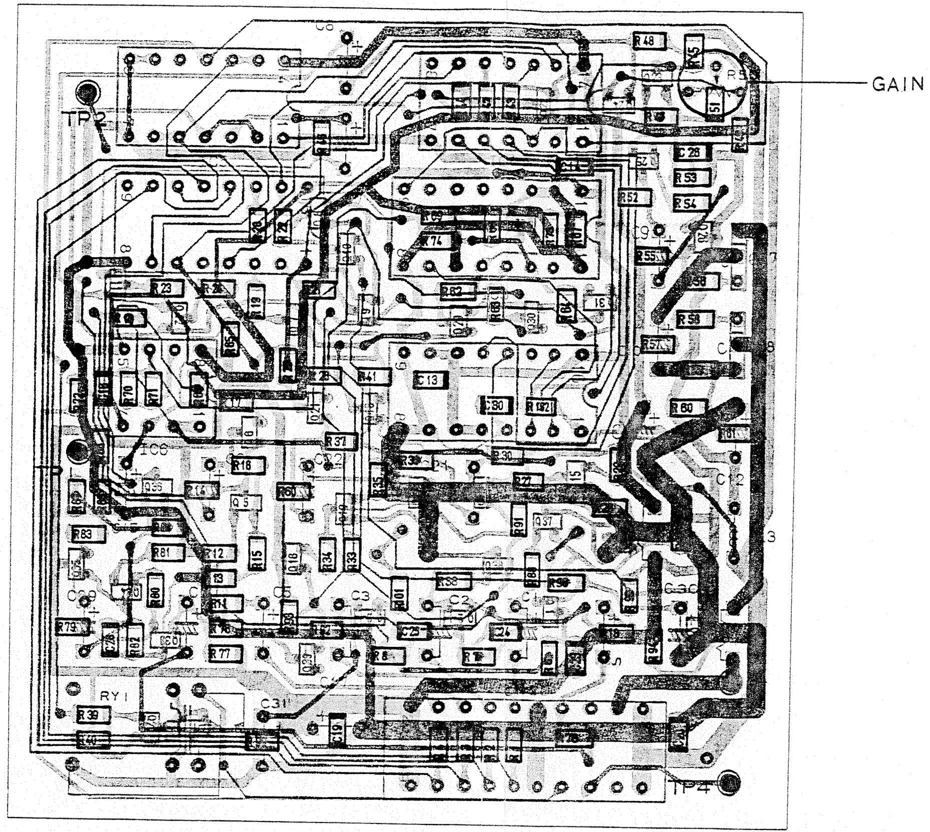
	R	G	B	ENC	R-G	B-G	SEQ	AUX
A	L	H	L	H	L	H	L	H
B	L	L	H	H	L	L	H	H
C	L	L	L	L	H	H	H	H
D	L	L	L	L	L	L	L	L

TEST OUT

6.7 TE CIRCUIT BOARD

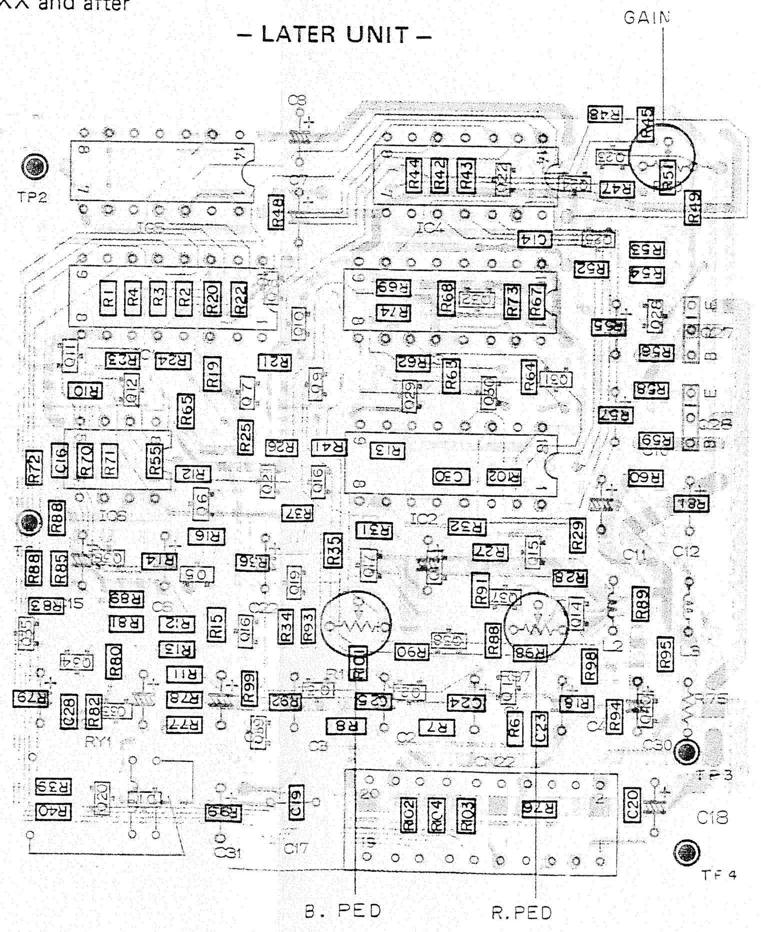
NOTE: Serial No's 1795XXXX and before

– FORMER UNIT –

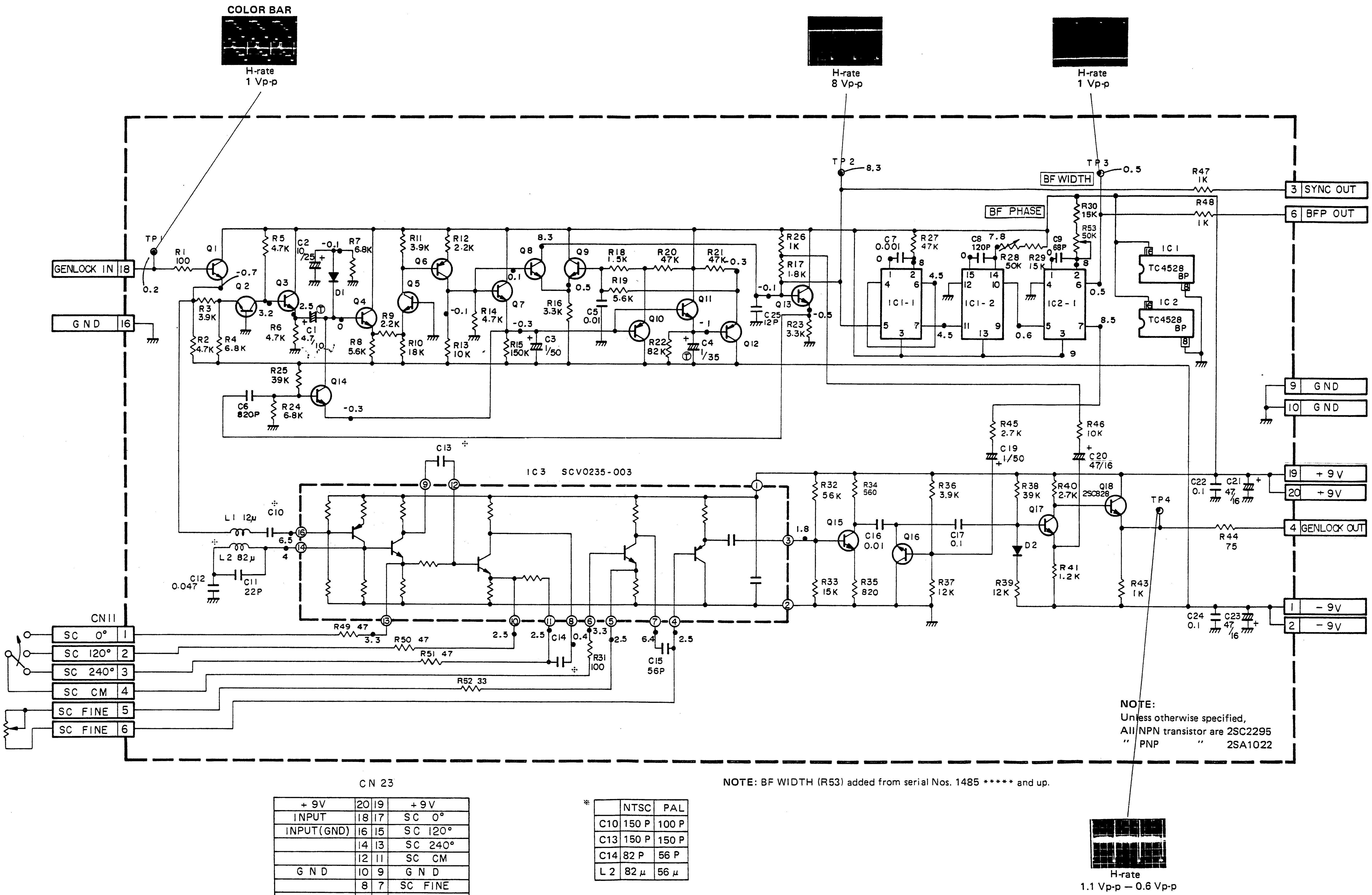

GAIN
TP2
TP3
TP4
RY1

NOTE : Serial No's 0605XXXX and after

– LATER UNIT –


GAIN
TP2
TP3
TP4
C18
B. PED
R.PED

6.8 PH BOARD SCHEMATIC DIAGRAM


COLOR BAR
H-rate
1 Vp-p
H-rate
8 Vp-p
H-rate
1 Vp-p
H-rate
1.1 Vp-p — 0.6 Vp-p
TP 1
TP 2
TP 3
TP 4
BF WIDTH
BF PHASE
GENLOCK IN 18
GND 16
3 SYNC OUT
6 BFP OUT
9 GND
10 GND
19 +9V
20 +9V
4 GENLOCK OUT
1 -9V
2 -9V
CN11
SC 0° 1
SC 120° 2
SC 240° 3
SC CM 4
SC FINE 5
SC FINE 6
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
Q17
Q18 2SC828
D1
D2
IC1-1
IC1-2
IC2-1
IC 1 TC4528BP
IC 2 TC4528BP
IC3 SCV0235-003
R1 100
R2 4.7K
R3 3.9K
R4 6.8K
R5 4.7K
R6 4.7K
R7 6.8K
R8 5.6K
R9 2.2K
R10 18K
R11 3.9K
R12 2.2K
R13 10K
R14 4.7K
R15 150K
R16 3.3K
R17 1.8K
R18 1.5K
R19 5.6K
R20 47K
R21 47K
R22 82K
R23 3.3K
R24 6.8K
R25 39K
R26 1K
R27 47K
R28 50K
R29 15K
R30 15K
R31 100
R32 56K
R33 15K
R34 560
R35 820
R36 3.9K
R37 12K
R38 39K
R39 12K
R40 2.7K
R41 1.2K
R43 1K
R44 75
R45 2.7K
R46 10K
R47 1K
R48 1K
R49 47
R50 47
R51 47
R52 33
R53 50K
C1 4.7/10
C2 10/25
C3 1/50
C4 1/35
C5 0.01
C6 820P
C7 0.001
C8 120P
C9 68P
C10
C11 22P
C12 0.047
C13
C14
C15 56P
C16 0.01
C17 0.1
C19 1/50
C20 47/16
C21 47/16
C22 0.1
C23 47/16
C24 0.1
C25 12P
L1 12µ
L2 82µ
0.2
-0.7
3.2
2.5
-0.1
8.3
0.1
0.5
-0.3
-1
-0.5
4.5
0.6
7.8
8.5
1.8
6.5
4
3.3
2.5
0.4
6.4

NOTE:
Unless otherwise specified,
All NPN transistor are 2SC2295
" PNP " 2SA1022

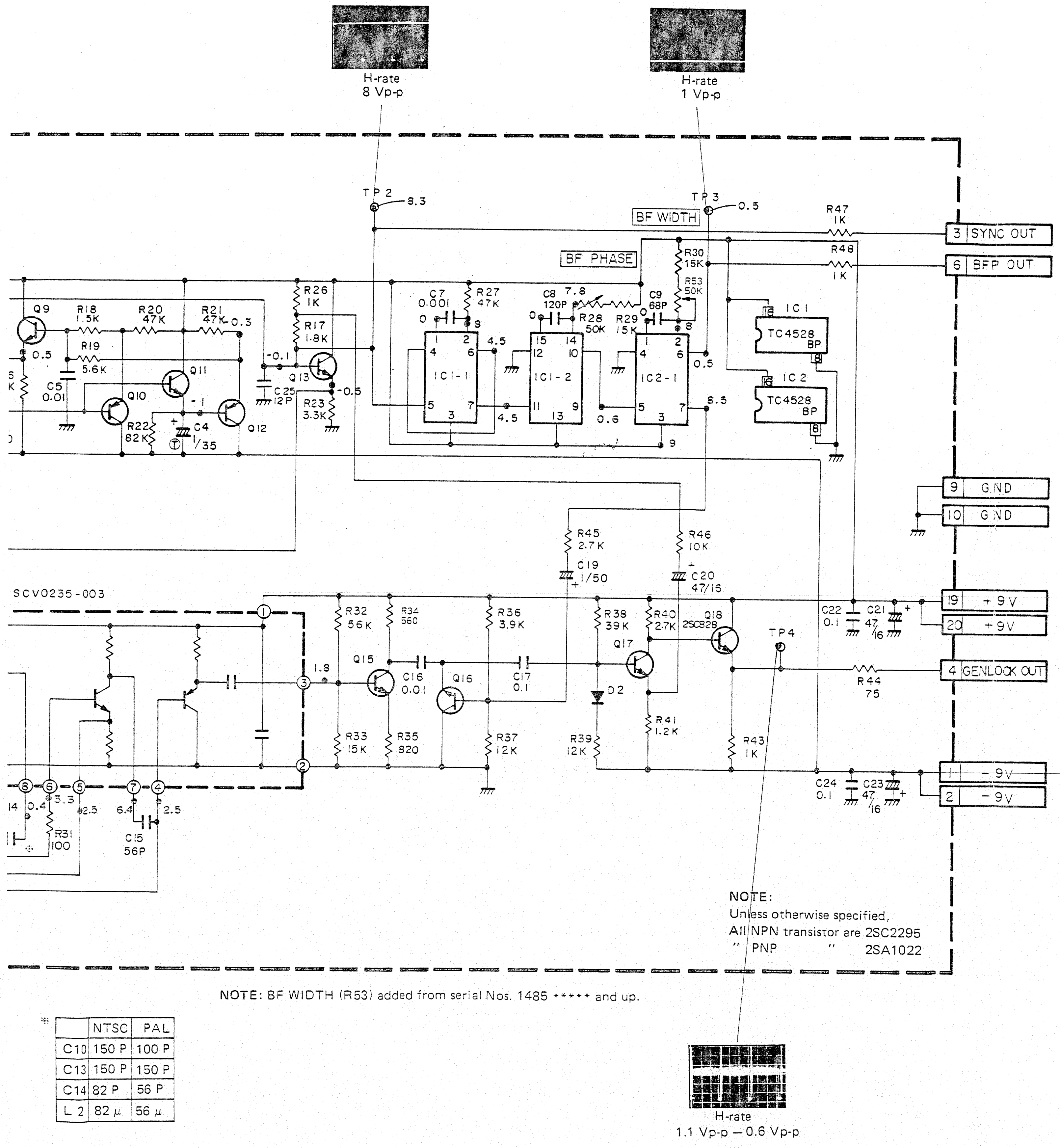
NOTE: BF WIDTH (R53) added from serial Nos. 1485 ***** and up.

CN 23

+9V	20	19	+9V
INPUT	18	17	SC 0°
INPUT(GND)	16	15	SC 120°
	14	13	SC 240°
	12	11	SC CM
GND	10	9	GND
	8	7	SC FINE
BF	6	5	SC FINE
OUTPUT	4	3	SYNC
-9V	2	1	-9V

*

	NTSC	PAL
C10	150 P	100 P
C13	150 P	150 P
C14	82 P	56 P
L2	82 µ	56 µ


H-rate
8 Vp-p
H-rate
1 Vp-p
TP2 8.3
TP3 0.5
BF WIDTH
BF PHASE
R47 1K
R48 1K
3 SYNC OUT
6 BFP OUT
R30 15K
R53 50K
Q9
R18 1.5K
R20 47K
R21 47K
R19 5.6K
C5 0.01
Q10
Q11
Q12
R22 82K
C4 1/35
R26 1K
R17 1.8K
Q13
C25 12P
R23 3.3K
C7 0.001
R27 47K
C8 120P
R28 50K
R29 15K
C9 68P
IC1-1
IC1-2
IC2-1
IC1 TC4528 BP
IC2 TC4528 BP
9 GND
10 GND
R45 2.7K
C19 1/50
R46 10K
C20 47/16
SCV0235-003
R32 56K
R34 560
R36 3.9K
R38 39K
R40 2.7K
Q18 2SC828
TP4
Q15
Q16
Q17
C16 0.01
C17 0.1
D2
R41 1.2K
R33 15K
R35 820
R37 12K
R39 12K
R43 1K
R44 75
C22 0.1
C21 47/16
C24 0.1
C23 47/16
19 +9V
20 +9V
4 GENLOCK OUT
1 -9V
2 -9V
R31 100
C15 56P
H-rate
1.1 Vp-p – 0.6 Vp-p

NOTE:
Unless otherwise specified,
All NPN transistor are 2SC2295
" PNP " 2SA1022

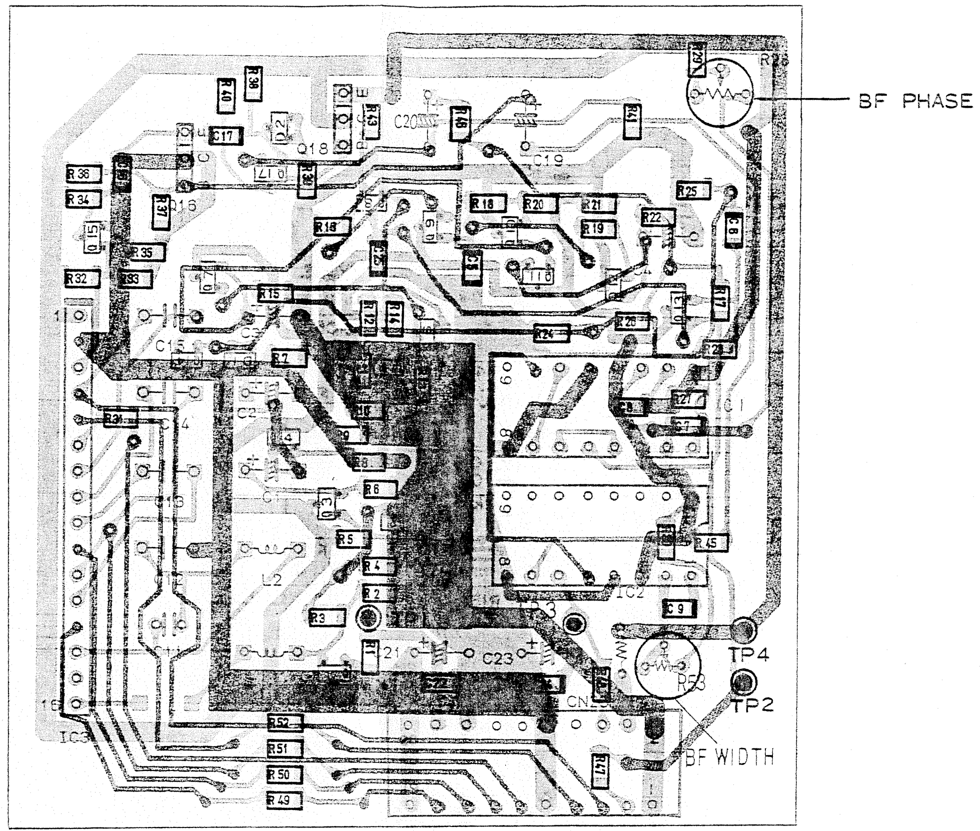
NOTE: BF WIDTH (R53) added from serial Nos. 1485 ***** and up.

	NTSC	PAL
C10	150 P	100 P
C13	150 P	150 P
C14	82 P	56 P
L 2	82 μ	56 μ

6.9 PH CIRCUIT BOARD

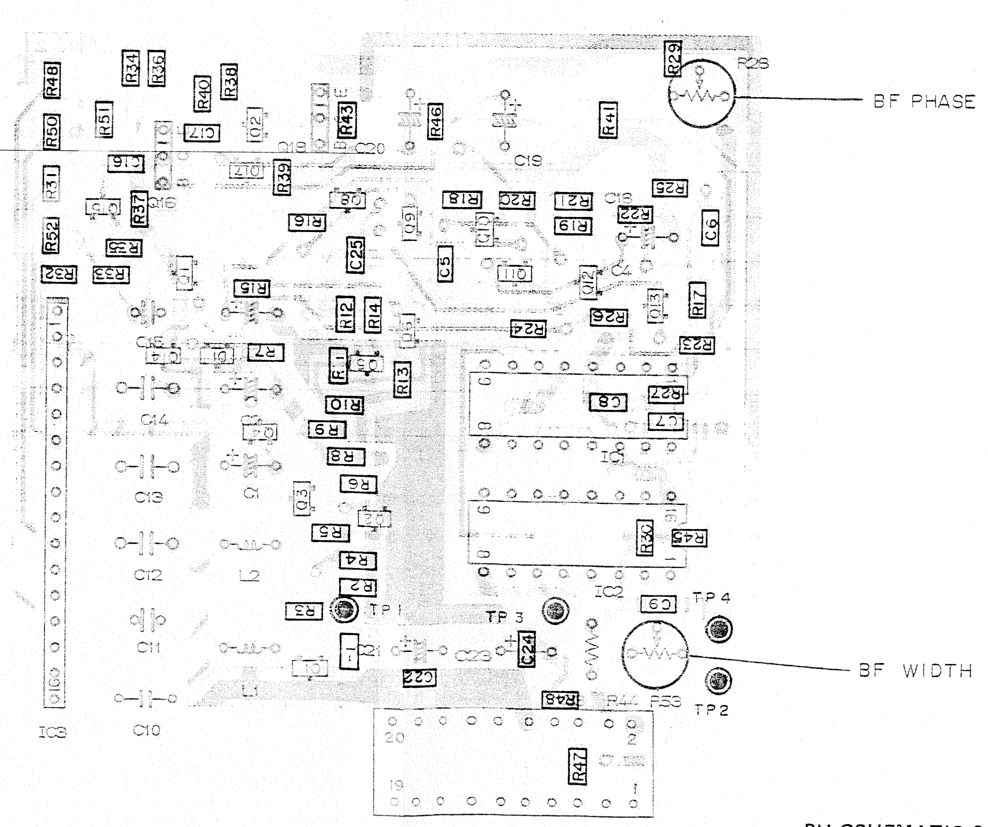
NOTE: Serial No's 1795XXXX and before

– FORMER UNIT –

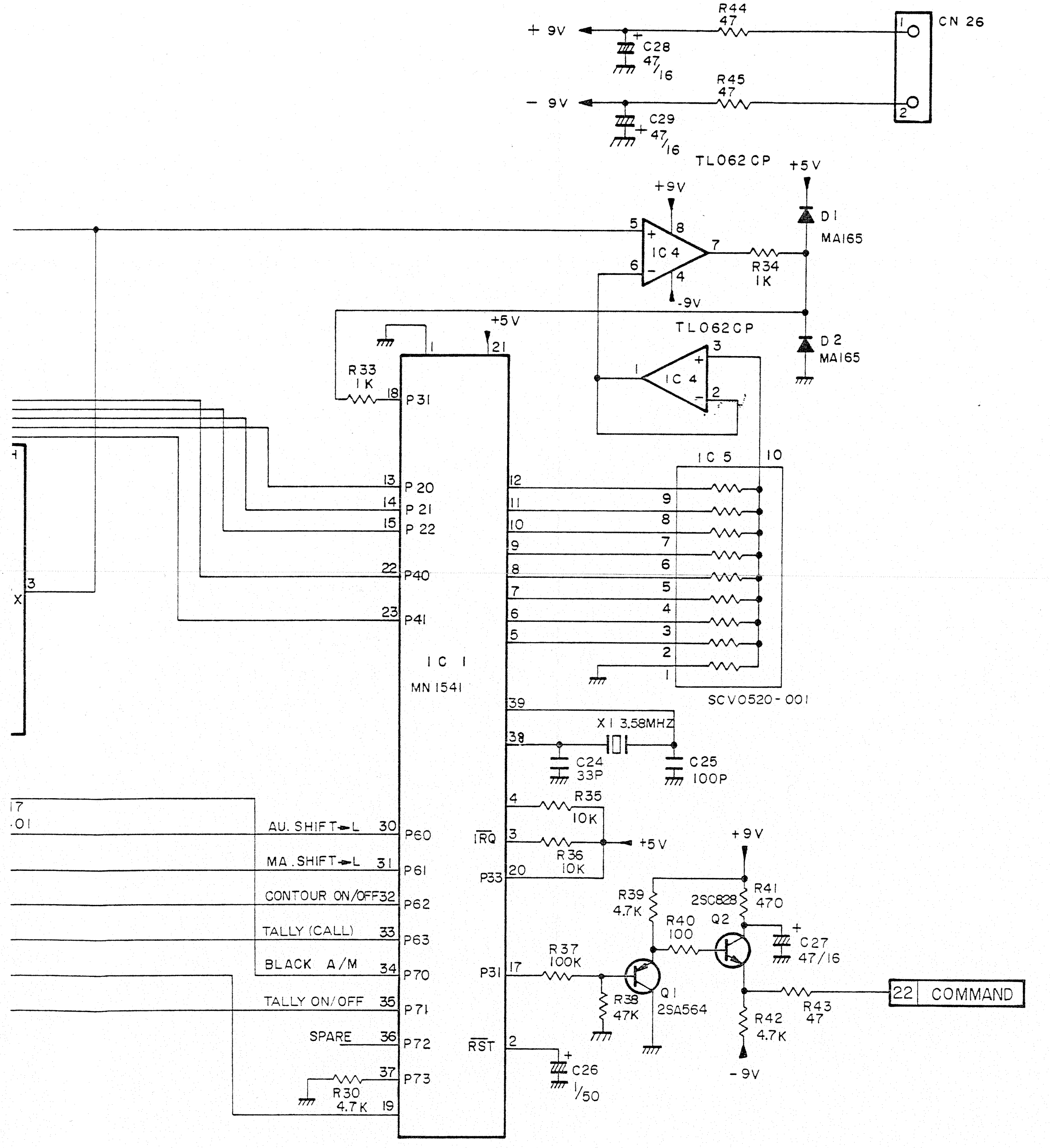

BF PHASE
R28
TP4
TP2
R53
BF WIDTH
IC1
IC2
IC3

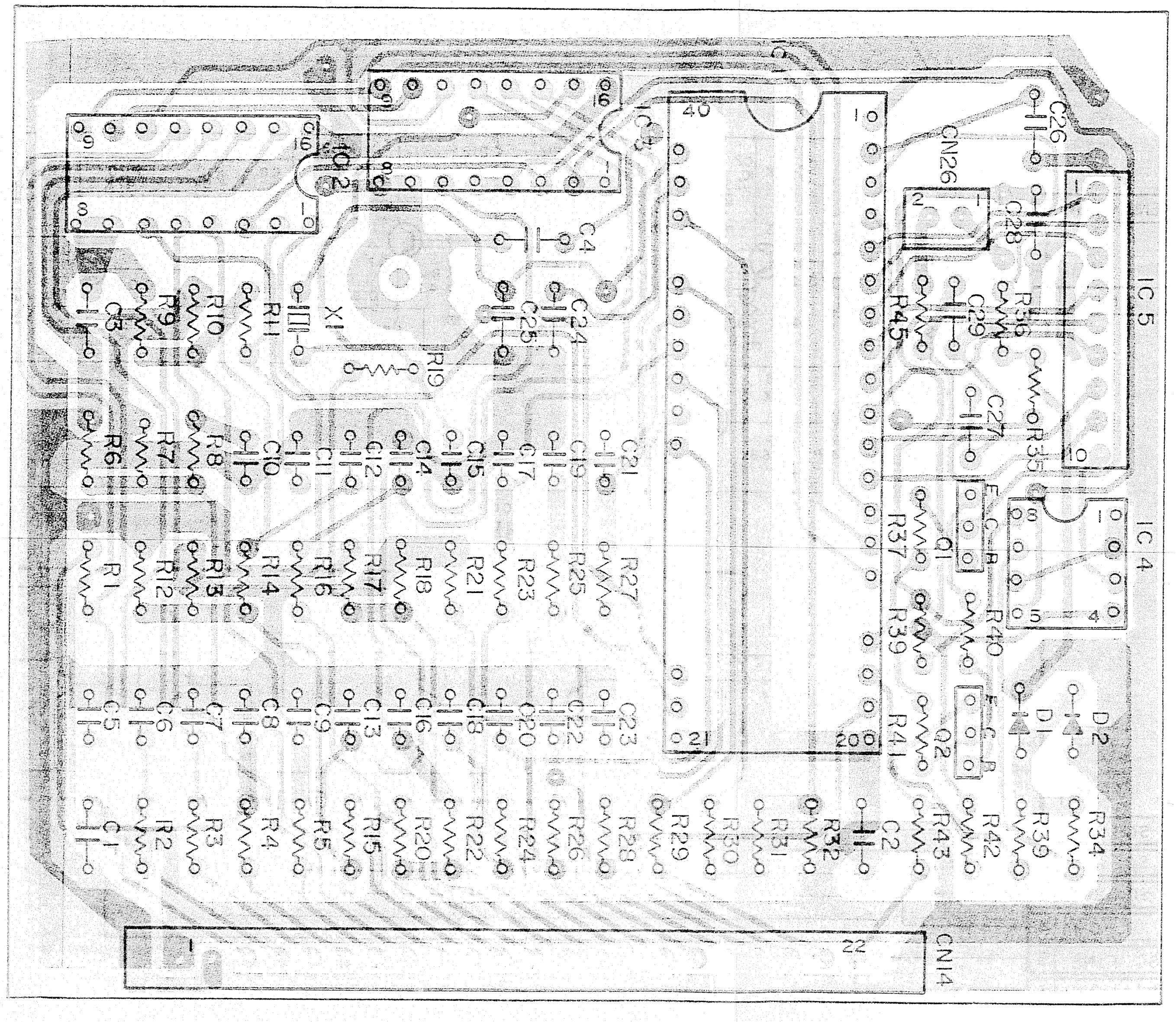
NOTE: Serial No's 0605XXXX and after

– LATER UNIT –

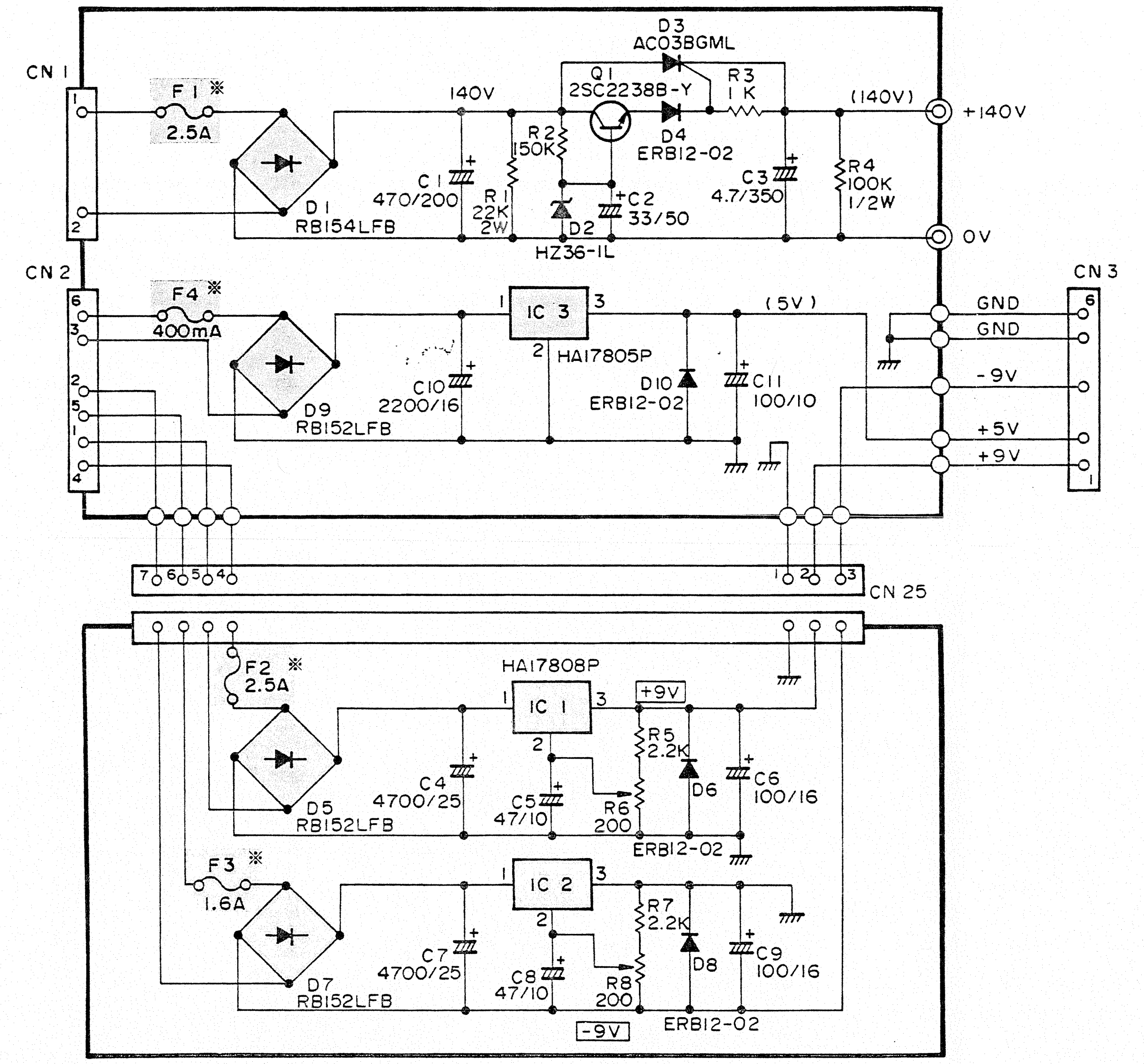

BF PHASE
R28
BF WIDTH
TP4
TP3
TP2
TP1
IC1
IC2
IC3
R53

6.11 CM CIRCUIT BOARD

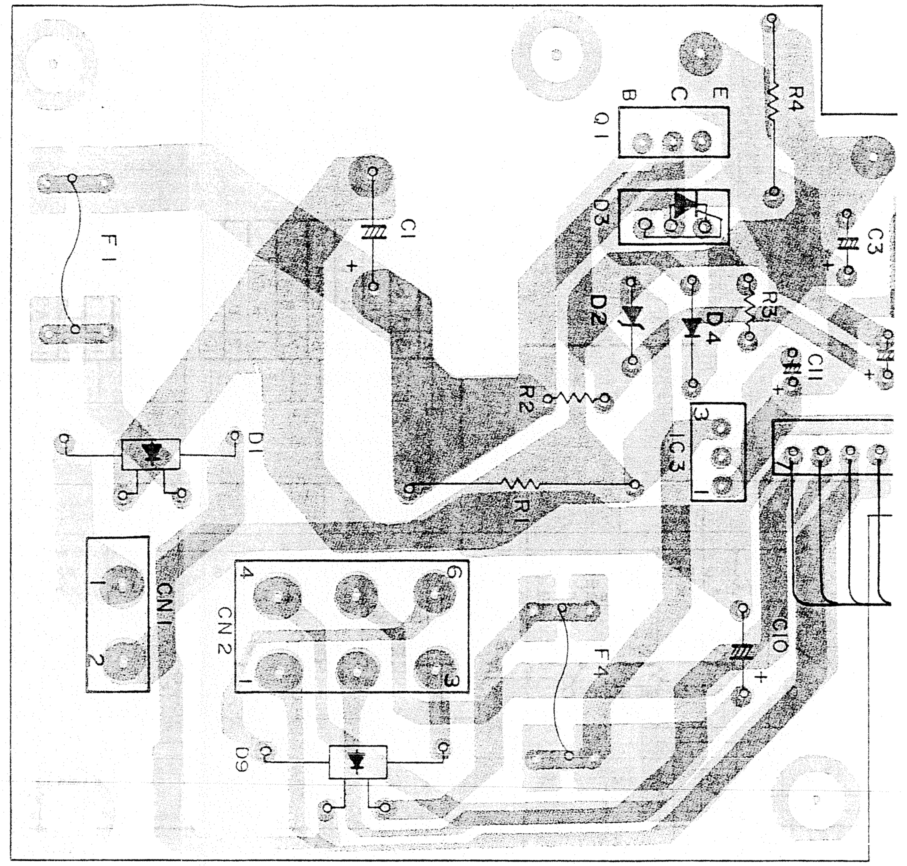

+9V
-9V
C28 47/16
C29 47/16
R44 47
R45 47
CN 26
TL062CP
+9V
+5V
IC 4
-9V
R34 1K
D1 MA165
D2 MA165
R33 1K
+5V
IC 1
MN1541
P31
P20
P21
P22
P40
P41
IC 5
SCV0520-001
X1 3.58MHZ
C24 33P
C25 100P
R35 10K
R36 10K
+5V
IRQ
P33
AU. SHIFT L
MA. SHIFT L
CONTOUR ON/OFF
TALLY (CALL)
BLACK A/M
TALLY ON/OFF
SPARE
P60
P61
P62
P63
P70
P71
P72
P73
R30 4.7K
+9V
R39 4.7K
R40 100
R41 470
2SC628 Q2
C27 47/16
R37 100K
R38 47K
Q1 2SA564
R43 47
R42 4.7K
-9V
RST
C26 1/50
22 COMMAND


IC 2
IC 3
CN26
IC 5
IC 4
X1
CN14
40
21
20
1
22
C26
C28
C29
R45
R35
R36
C27
R37
R39
R40
R41
Q1
Q2
D1
D2
R34
R42
R43
C2
C1
C3
C4
C5
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
R29
R30
R31
R32
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C25

6.12 PS BOARD SCHEMATIC DIAGRAM


CN 1
F 1 ※
2.5A
D1
RB154LFB
140V
D3
AC03BGML
Q1
2SC2238B-Y
R3
1K
R2
150K
D4
ERB12-02
C1
470/200
R1
22K
2W
D2
HZ36-1L
C2
33/50
C3
4.7/350
(140V)
R4
100K
1/2W
+140V
0V
CN 2
F4 ※
400mA
D9
RB152LFB
C10
2200/16
IC 3
HA17805P
D10
ERB12-02
(5V)
C11
100/10
CN 3
GND
GND
-9V
+5V
+9V
CN 25
F2 ※
2.5A
HA17808P
IC 1
+9V
D5
RB152LFB
C4
4700/25
C5
47/10
R5
2.2K
R6
200
D6
C6
100/16
ERB12-02
F3 ※
1.6A
D7
RB152LFB
C7
4700/25
IC 2
C8
47/10
R7
2.2K
R8
200
D8
C9
100/16
-9V
ERB12-02

6.13 PS CIRCUIT BOARD


F1
C1
Q1
B
C
E
R4
D3
C3
D2
D4
R3
C11
R2
D1
IC3
R1
CN1
CN2
F4
C10
D9

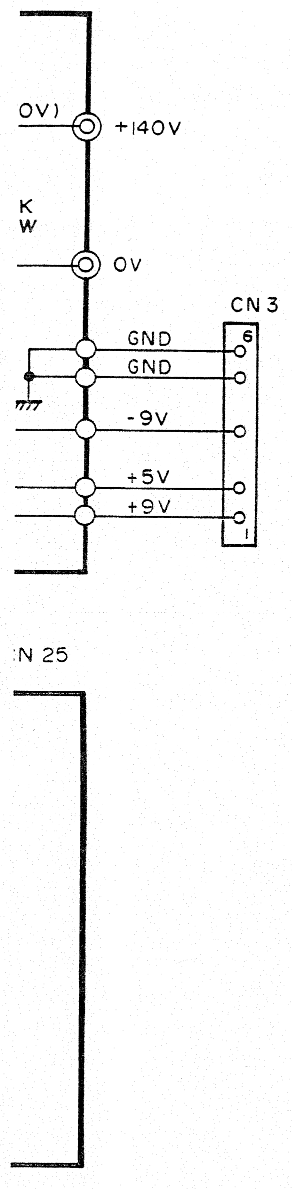
※

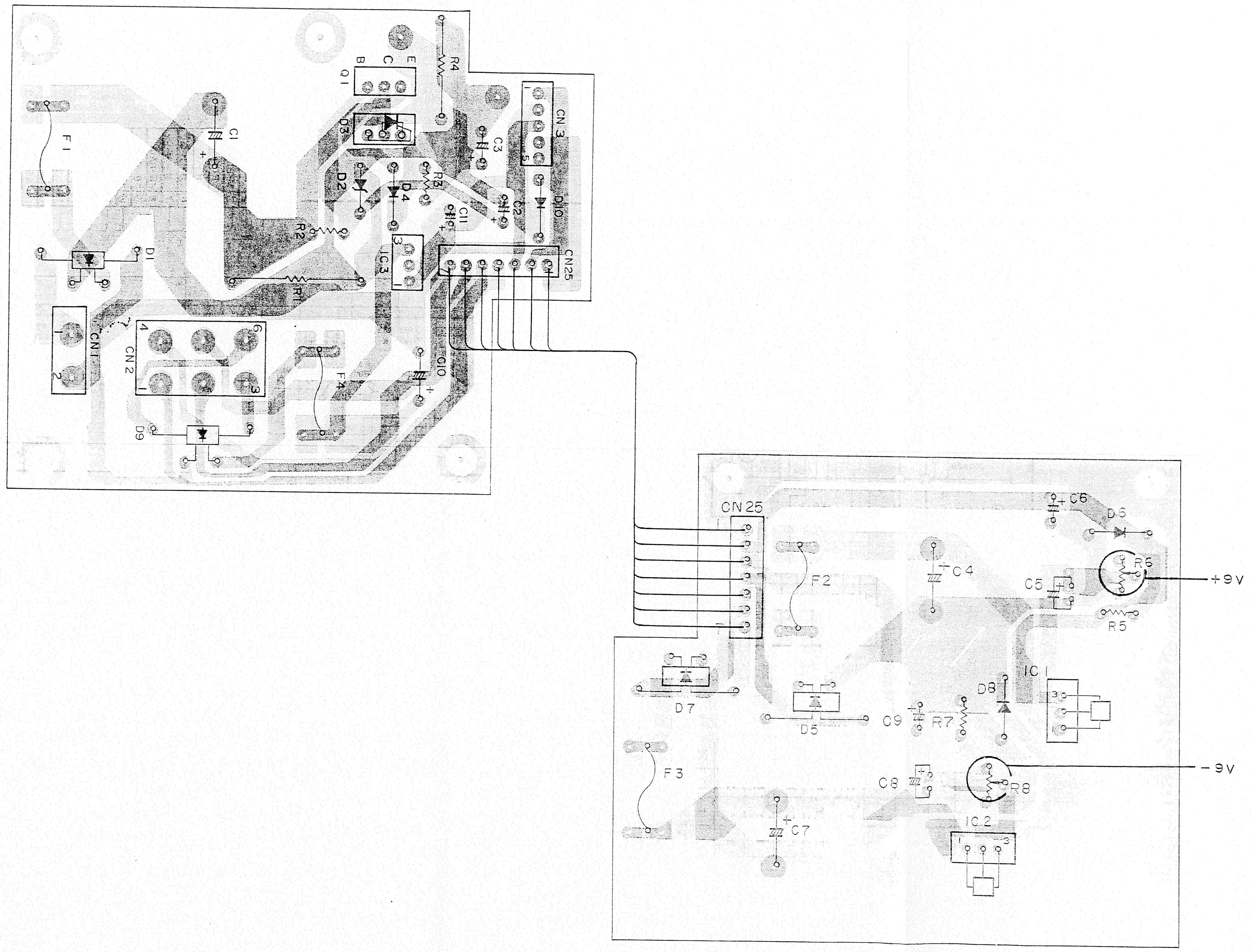
FUSE	NTSC	PAL
F 1	2.5 A-125 V	T2.5 A-250 V
F 2	〃	〃
F 3	1.6 A-125 V	T1.6 A-250 V
F 4	400 mA-125 V	T400 mA-250 V

NOTES:

1. Voltage in schematics are DC-measured with a digital voltmeter.
2. Replacing shaded (   ) parts, be sure to use parts specified for safety purposes.

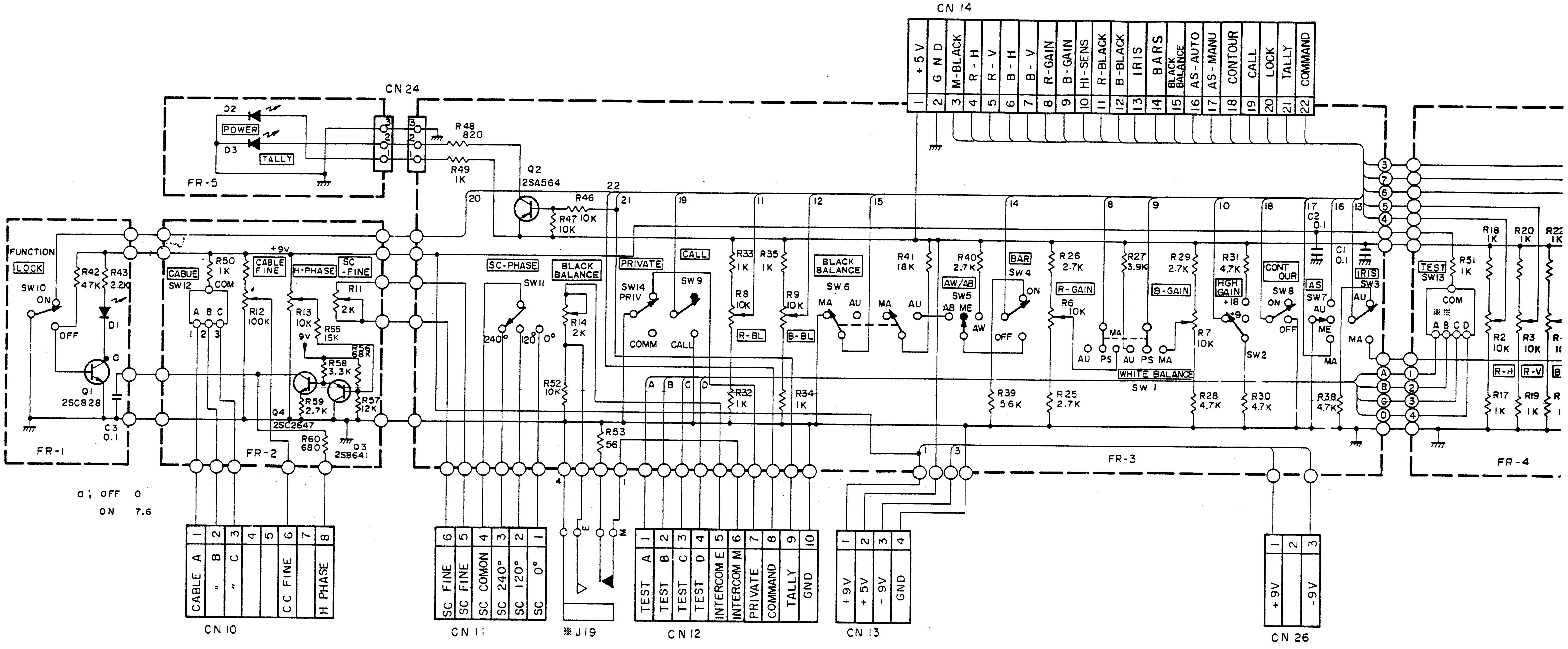
6.13 PS CIRCUIT BOARD


OV)
+140V
K
W
OV
CN3
GND
GND
-9V
+5V
+9V
6
1
N 25


F1
C1
B C E
Q1
R4
D3
CN3
C3
D2
D4
R3
C11
C2
D10
D1
R2
IC3
CN25
R1
CN1
CN2
F4
C10
D9
CN25
C6
D6
F2
C4
C5
R6
+9V
R5
IC1
D7
D5
C9
R7
D8
F3
C8
R8
-9V
C7
IC2

ics are DC-measured with a digital voltmeter.
) parts, be sure to use parts specified for

6.14 FR BOARDS SCHEMATIC DIAGRAM


CN 14
+5V
GND
M-BLACK
R-H
R-V
B-H
B-V
R-GAIN
B-GAIN
HI-SENS
R-BLACK
B-BLACK
IRIS
BARS
BLACK BALANCE
AS-AUTO
AS-MANU
CONTOUR
CALL
LOCK
TALLY
COMMAND
CN 24
D2
POWER
D3
TALLY
FR-5
R48 820
R49 1K
Q2 2SA564
R46
R47 10K
FUNCTION
LOCK
SW10
ON
OFF
R42 4.7K
R43 2.2K
D1
Q1 2SC828
C3 0.1
FR-1
CABLE
SW12
R50 1K
COM
CABLE FINE
H-PHASE
SC-FINE
R11 2K
R12 100K
R13 10K
R55 15K
R56 68K
R58 3.3K
R59 2.7K
R57 12K
Q4 2SC2647
R60 680
Q3 2SB641
FR-2
+9V
SC-PHASE
SW11
240° 120° 0°
BLACK BALANCE
R14 2K
R52 10K
R53 56
PRIVATE
SW14 PRIV
COMM
CALL
SW9
R33 1K
R35 1K
R8 10K
R9 10K
R-BL
B-BL
R32 1K
R34 1K
SW6
MA AU
R41 18K
R40 2.7K
AW/AB
SW5
AB ME
AW
BAR
SW4
ON OFF
R39 5.6K
R26 2.7K
R-GAIN
R6 10K
R25 2.7K
R27 3.9K
R29 2.7K
B-GAIN
AU PS AU PS MA
WHITE BALANCE
SW1
R7 10K
R28 4.7K
R31 4.7K
HIGH GAIN
+18 +9
SW2
R30 4.7K
CONTOUR
SW8
ON OFF
C2 0.1
C1 0.1
AS
SW7
AU ME MA
R38 4.7K
IRIS
SW3
AU MA
FR-3
TEST
SW13
R51 1K
COM
A B C D
R18 1K
R20 1K
R2 10K
R3 10K
R-H
R-V
R17 1K
R19 1K
FR-4
a ; OFF 0
ON 7.6
CN 10
1 CABLE A
2 " B
3 " C
4
5
6 C C FINE
7
8 H PHASE
CN 11
6 SC FINE
5 SC FINE
4 SC COMON
3 SC 240°
2 SC 120°
1 SC 0°
※J19
E
M
CN 12
1 TEST A
2 TEST B
3 TEST C
4 TEST D
5 INTERCOM E
6 INTERCOM M
7 PRIVATE
8 COMMAND
9 TALLY
10 GND
CN 13
1 +9V
2 +5V
3 -9V
4 GND
CN 26
1 +9V
2
3 -9V

CABLE

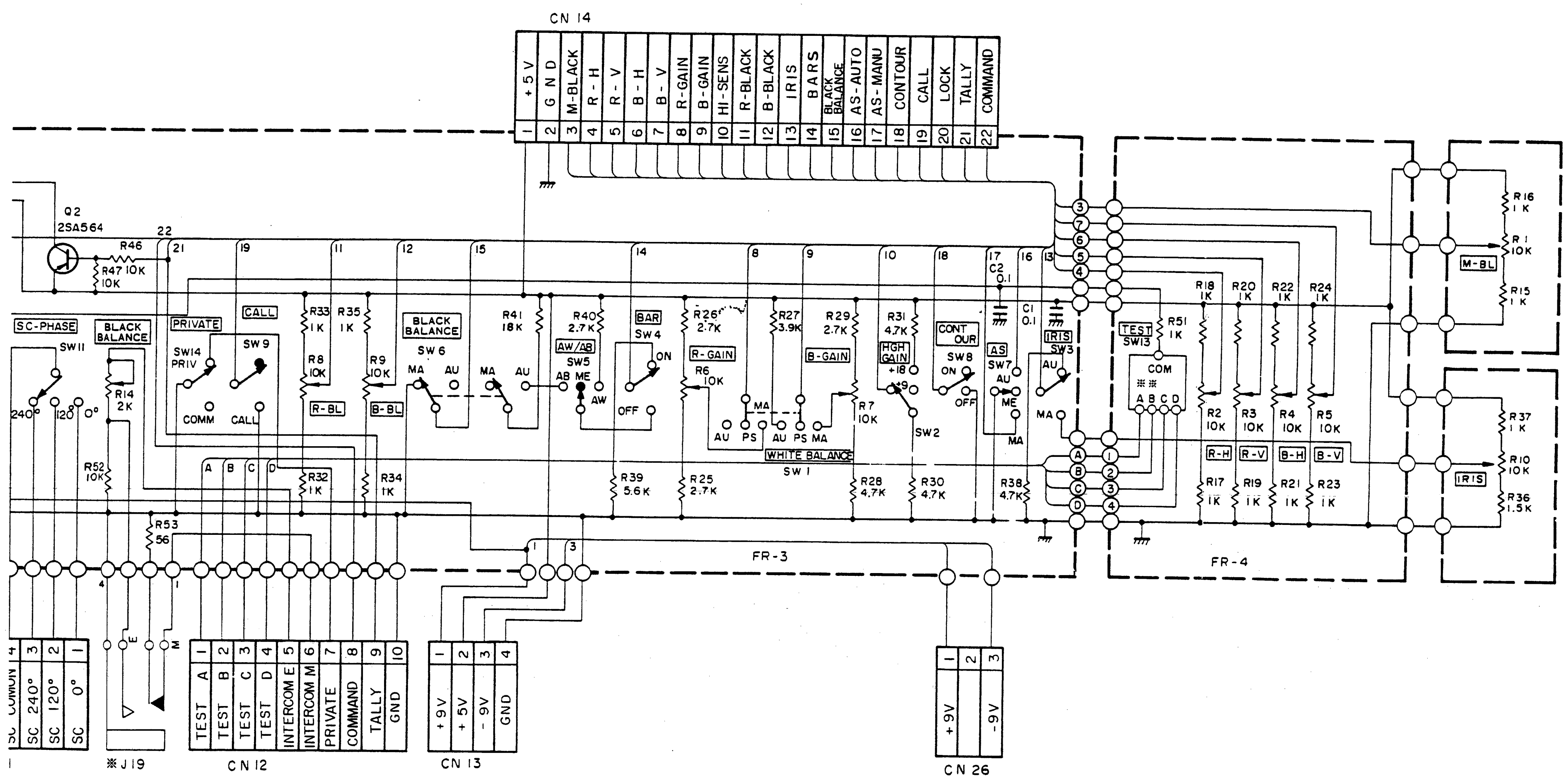
x10m OUT	2	7	12	17	22	27	32
A	L	H	L	H	L	H	L
B	L	L	H	H	L	L	H
C	L	L	L	L	H	H	H

※※ TEST OUT

PANEL OUT	R	G	B	ENC	R-G	B-G	SEQ	AUX
A	L	H	L	H	L	H	L	H
B	L	L	H	H	L	L	H	H
C	L	L	L	L	H	H	H	H
D	L	L	L	L	L	L	L	L

※ NOTE :

Audio volume may not sufficie
Effects Generator as the model
Requires modefication of interc
them.


CN 14
+5V
GND
M-BLACK
R-H
R-V
B-H
B-V
R-GAIN
B-GAIN
HI-SENS
R-BLACK
B-BLACK
IRIS
BARS
BLACK BALANCE
AS-AUTO
AS-MANU
CONTOUR
CALL
LOCK
TALLY
COMMAND
Q2
2SA564
R46
R47 10K
10K
SC-PHASE
SW11
240°
120°
0°
BLACK BALANCE
R14
2K
R52
10K
R53
56
PRIVATE
SW14
PRIV
COMM
CALL
SW9
R33
1K
R35
1K
R8
10K
R9
10K
R-BL
B-BL
R32
1K
R34
1K
BLACK BALANCE
SW6
MA
AU
R41
18K
R40
2.7K
AW/AB
SW5
AB
ME
AW
BAR
SW4
ON
OFF
R39
5.6K
R26
2.7K
R-GAIN
R6
10K
R25
2.7K
R27
3.9K
R29
2.7K
B-GAIN
R7
10K
WHITE BALANCE
SW1
AU
PS
R28
4.7K
R31
4.7K
HIGH GAIN
+18
+9
SW2
R30
4.7K
CONTOUR
SW8
ON
OFF
C2
0.1
C1
0.1
AS
SW7
AU
ME
MA
IRIS
SW3
AU
R38
4.7K
TEST
SW13
R51
1K
COM
※※
A B C D
R18
1K
R20
1K
R22
1K
R24
1K
R2
10K
R3
10K
R4
10K
R5
10K
R-H
R-V
B-H
B-V
R17
1K
R19
1K
R21
1K
R23
1K
R16
1K
R1
10K
M-BL
R15
1K
R37
1K
R10
10K
IRIS
R36
1.5K
FR-3
FR-4
SC COMMON
SC 240°
SC 120°
SC 0°
E
M
※J19
TEST A
TEST B
TEST C
TEST D
INTERCOM E
INTERCOM M
PRIVATE
COMMAND
TALLY
GND
CN 12
+9V
+5V
-9V
GND
CN 13
+9V
-9V
CN 26

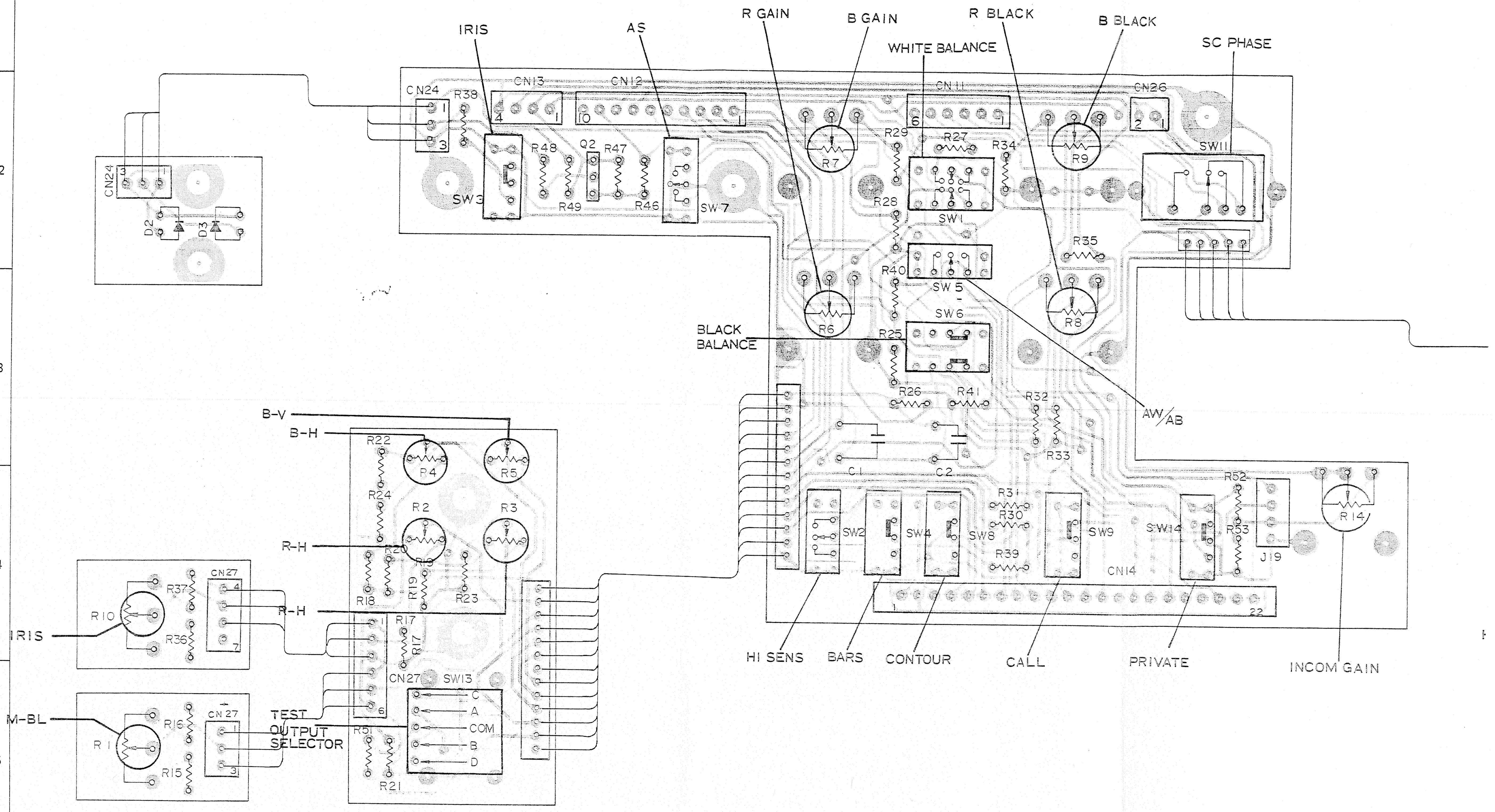
※※ TEST OUT

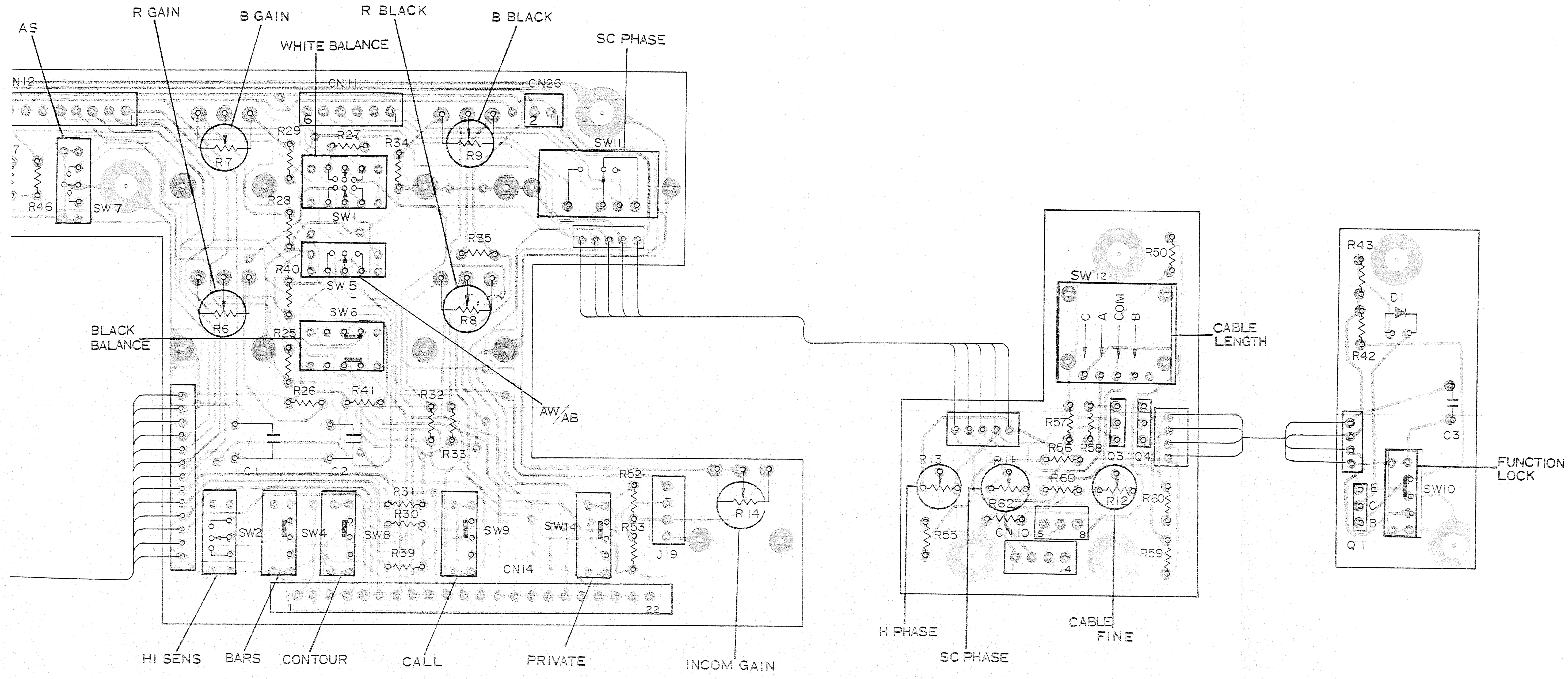
PANEL / OUT	R	G	B	ENC	R-G	B-G	SEQ	AUX
A	L	H	L	H	L	H	L	H
B	L	L	H	H	L	L	H	H
C	L	L	L	L	H	H	H	H
D	L	L	L	L	L	L	L	L

※ NOTE :

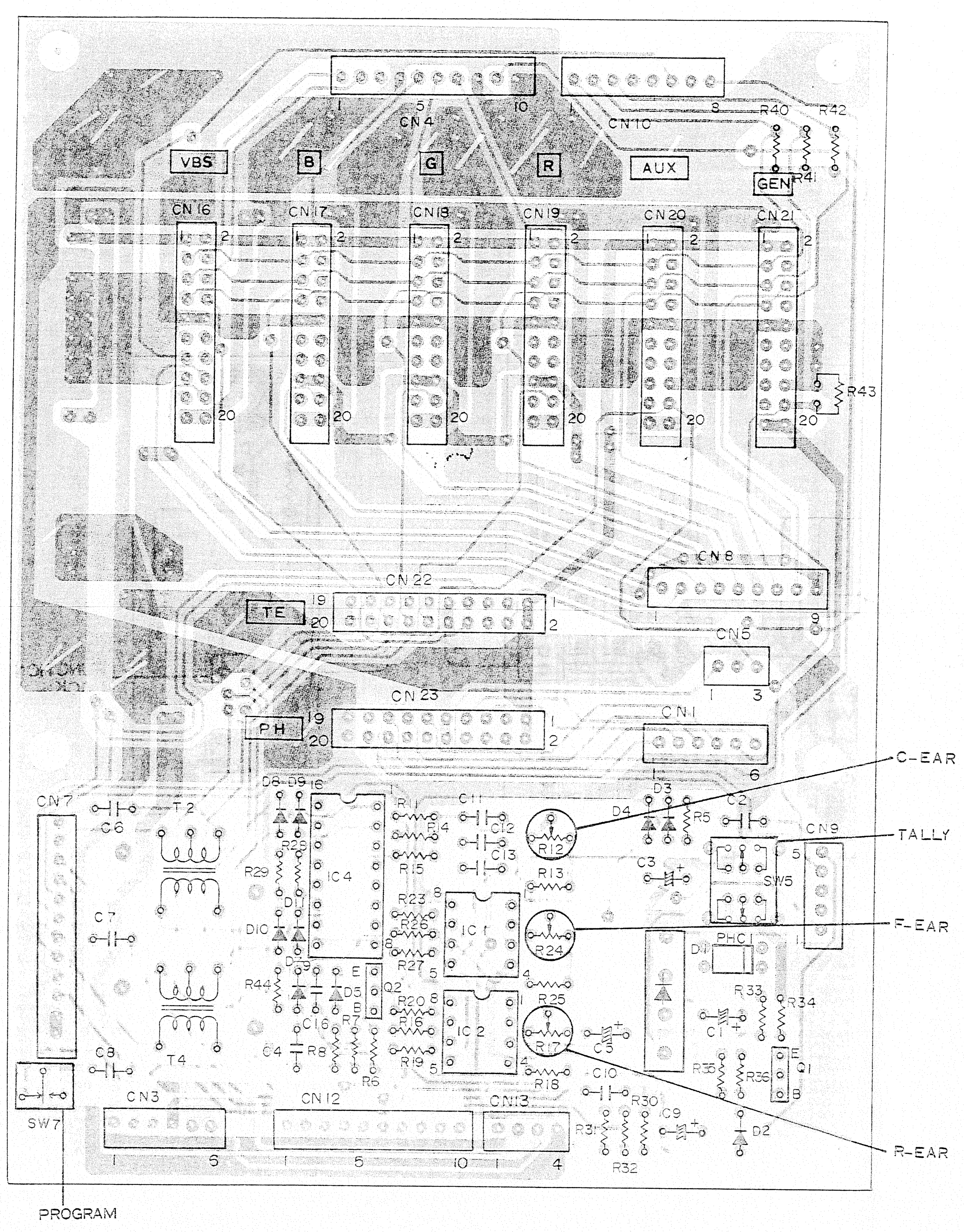
Audio volume may not sufficient for KM-2000 JVC Special Effects Generator as the model has not enough output level. Requires modefication of intercom sockets to cut off two of them.

6.15 FR CIRCUIT BOARD


IRIS
AS
R GAIN
B GAIN
WHITE BALANCE
R BLACK
B BLACK
SC PHASE
CN24
CN13
CN12
CN11
CN26
R38
R48
Q2
R47
R49
R46
SW3
SW7
R29
R27
R34
R7
R9
SW1
SW11
R28
R35
R40
SW5
SW6
R6
R8
D2
D3
BLACK BALANCE
R25
R26
R41
R32
R33
AW/AB
C1
C2
B-V
B-H
R22
R4
R5
R24
R2
R3
R-H
R20
R18
R19
R23
R10
R37
CN27
R36
R17
SW13
C
A
COM
B
D
M-BL
R1
R16
R15
TEST OUTPUT SELECTOR
R51
R21
SW2
SW4
SW8
R31
R30
R39
SW9
SW14
R52
R53
J19
R14
CN14
HI SENS
BARS
CONTOUR
CALL
PRIVATE
INCOM GAIN

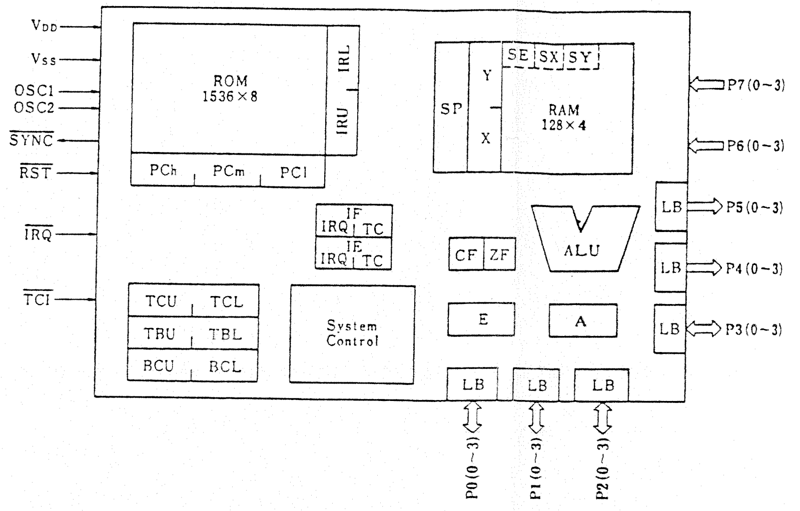

AS
R GAIN
B GAIN
WHITE BALANCE
R BLACK
B BLACK
SC PHASE
CN12
CN11
CN26
R29
R27
R34
R7
R9
SW11
R46
SW7
R28
SW1
R35
R40
SW5
R8
R6
SW6
BLACK BALANCE
R25
R26
R41
R32
R33
AW/AB
C1
C2
R52
R31
R30
R53
SW2
SW4
SW8
SW9
SW14
R39
CN14
J19
R14
1
22
HI SENS
BARS
CONTOUR
CALL
PRIVATE
INCOM GAIN
R50
SW12
C
A
COM
B
CABLE LENGTH
R57
R56
R58
Q3
Q4
R13
R11
R60
R12
R62
R60
CN10
R55
R59
H PHASE
SC PHASE
CABLE FINE
R43
D1
R42
C3
FUNCTION LOCK
E
C
B
SW10
Q1

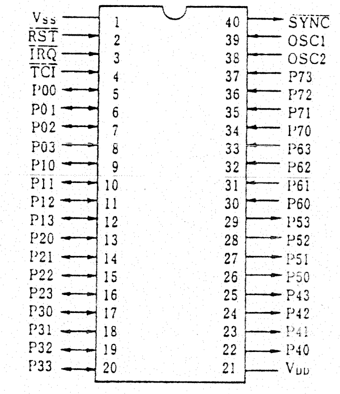
6.16 MT CIRCUIT BOARD


1
2
3
4
5
6
CN4
5
10
1
8
CN10
R40
R42
VBS
B
G
R
AUX
GEN
R41
CN16
CN17
CN18
CN19
CN20
CN21
2
20
R43
CN8
CN22
19
20
1
2
TE
9
CN5
1
3
CN23
PH
CN1
6
C-EAR
TALLY
F-EAR
R-EAR
CN7
C6
T2
D8
D9
16
IC4
R11
C11
R14
C12
C13
R15
R12
D4
D3
R5
C2
CN9
R29
D11
R23
IC1
R13
C3
SW5
D10
R26
R27
R24
PHC1
D1
R44
D5
Q2
E
R20
R16
IC2
R25
R33
R34
C16
R7
C1
C7
C8
T4
C4
R8
R6
R19
R17
C5
R35
R36
Q1
R18
C10
R30
C9
R31
R32
D2
SW7
CN3
CN12
CN13
PROGRAM

6.17 ICs

MN1541VVU-2 (Micro computers) [MATSUSHITA]


V_DD
V_SS
OSC1
OSC2
SYNC
RST
IRQ
TCI
ROM 1536×8
IRL
IRU
PCh
PCm
PCl
SP
Y
X
SE
SX
SY
RAM 128×4
P7(0~3)
P6(0~3)
LB
P5(0~3)
P4(0~3)
P3(0~3)
IF IRQ TC
IE IRQ TC
CF
ZF
ALU
TCU
TCL
TBU
TBL
BCU
BCL
System Control
E
A
LB
LB
LB
P0(0~3)
P1(0~3)
P2(0~3)

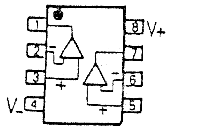


Pin	Signal	Pin	Signal
1	V_SS	40	SYNC
2	RST	39	OSC1
3	IRQ	38	OSC2
4	TCI	37	P73
5	P00	36	P72
6	P01	35	P71
7	P02	34	P70
8	P03	33	P63
9	P10	32	P62
10	P11	31	P61
11	P12	30	P60
12	P13	29	P53
13	P20	28	P52
14	P21	27	P51
15	P22	26	P50
16	P23	25	P43
17	P30	24	P42
18	P31	23	P41
19	P32	22	P40
20	P33	21	V_DD

V_DD	Power (+5 V)
V_SS	Ground
OSC1, OSC2	Clock (OSC1 : Ext clock input)
SYNC	Sync output internal
RST	Reset
IRQ	Iregular program control input
P00 ~ P33(MN1541)	Parallel input/output
P40 ~ P53(MN1541)	Parallel output
P60 ~ P73(MN1541)	Parallel input

M \ L	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NOP		CPL Z	RC C	RDSP	WTSP	DAA ZC	SC C	ROL ZC	FOR ZC	DAS ZC	RDTBL	CEAI ZC	CD ZC	CE ZC	C ZC
1	A ZC	AC ZC	S ZC	SB ZC	O Z	X Z	N Z	L Z	AD ZC	ACD ZC	SD ZC	SBD ZC	OD Z	XD Z	ND Z	LD Z
2	ICY Z	LICY Z	STICY Z		DCY Z	LDCY Z	STDCY Z		AE ZC	ACE ZC	SE ZC	SBE ZC	OE Z	XE Z	NE Z	LE Z
3			LMXI Z		RET	RETI ZC	JMPEA	RMD	RBMD Z				SBMD Z			
4	EXSX	EXSY	EXSE		LX Z	LY Z	EXE	EX	LBD	STBD						
5				STD	STX	STY	STE	ST		ICEA C		EDI	LXY	STXY		
6	ICM ZC	ICMD ZC	ROUT		DCM ZC	DCMD ZC	SOUT		PSHEA	PSHXY	JNZ	JNC	POPEA	POPXY	JZ	JC
7			OUT	IN		LXSXI	LEAI	LXYI	JBZ				JBNZ			
8		WTTC	WTTB			RDBC			CALS							
9	CALL															
A	JMP															
B	CYIJ															Z
C	LYI															
D	AI															ZC
E	CI															ZC
F	LI															

NJM4556D
NJM4560D (DUAl

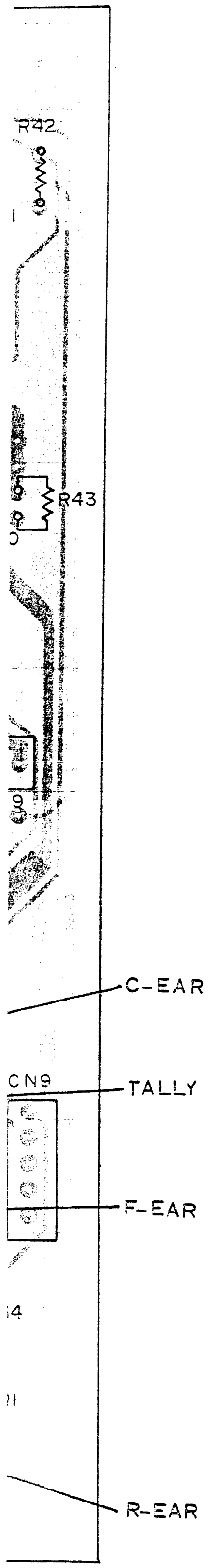

1
2
3
4
5
6
7
8
V+
V-

TC4001E
POSITIV

Vss

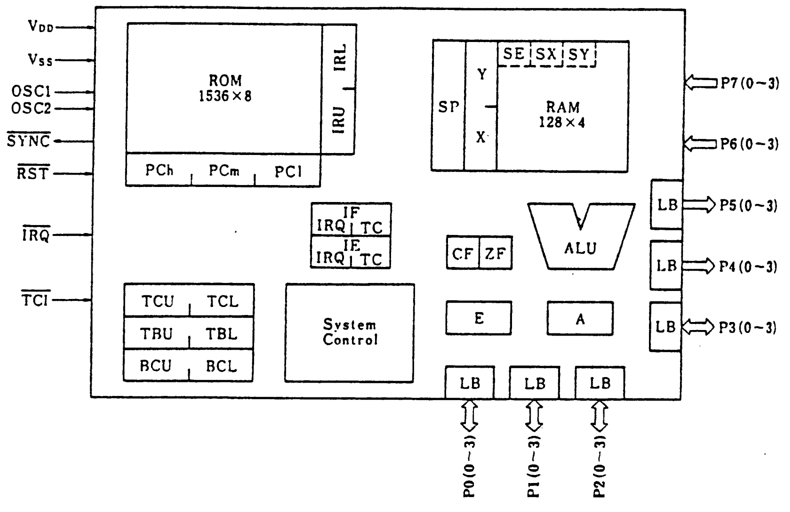
TC4(

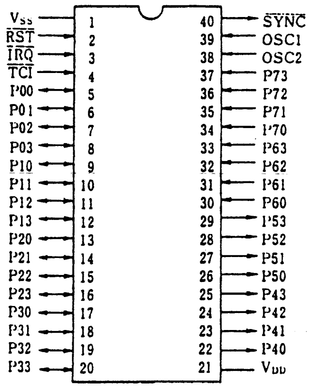
CLOC
C
Q
Q
Q
RESI
DA
V


R42
R43
C-EAR
CN9
TALLY
F-EAR
R-EAR

6.17 ICs

MN1541VVU-2 (Micro computers) [MATSUSHITA]


VDD
VSS
OSC1
OSC2
SYNC
RST
IRQ
TCI
ROM 1536×8
IRL
IRU
PCh
PCm
PCl
IF IRQ TC
IE IRQ TC
TCU TCL
TBU TBL
BCU BCL
System Control
SE SX SY
SP
Y
X
RAM 128×4
CF ZF
ALU
E
A
LB
P7(0~3)
P6(0~3)
P5(0~3)
P4(0~3)
P3(0~3)
P0(0~3)
P1(0~3)
P2(0~3)


VSS 1
RST 2
IRQ 3
TCI 4
P00 5
P01 6
P02 7
P03 8
P10 9
P11 10
P12 11
P13 12
P20 13
P21 14
P22 15
P23 16
P30 17
P31 18
P32 19
P33 20
40 SYNC
39 OSC1
38 OSC2
37 P73
36 P72
35 P71
34 P70
33 P63
32 P62
31 P61
30 P60
29 P53
28 P52
27 P51
26 P50
25 P43
24 P42
23 P41
22 P40
21 VDD

V_{DD} ……………………… Power (+5 V)

V_{SS} ……………………… Ground

OSC1, OSC2 …………… Clock

(OSC1 : Ext clock input)

$\overline{SYNC}$ ……………………… Sync output internal

$\overline{RST}$ ……………………… Reset

$\overline{IRQ}$ ……………………… Iregular program control input

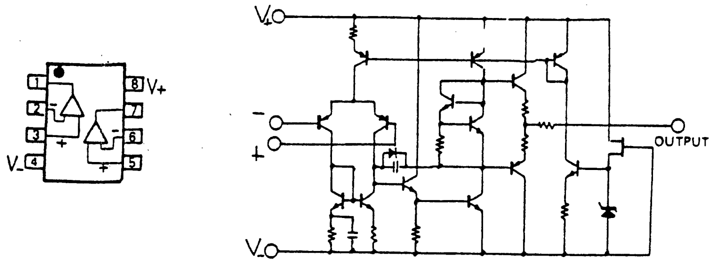
P00~P33(MN1541) …… Parallel input/output

P40~P53(MN1541) …… Parallel output

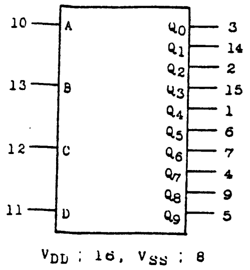
P60~P73(MN1541) …… Parallel input

M \ L	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NOP		CPL	RC	RDSP	WTSP	DAA	SC	ROL	FOR	DAS	RDTBL	CEAI	CD	CE	C
			Z	C			ZC	C	ZC	ZC	ZC		ZC	ZC	ZC	ZC
1	A	AC	S	SB	O	X	N	L	AD	ACD	SD	SBD	OD	XD	ND	LD
	ZC	ZC	ZC	ZC	Z	Z	Z	Z	ZC	ZC	ZC	ZC	Z	Z	Z	Z
2	ICY	LICY	STICY		DCY	LDCY	STDCY		AE	ACE	SE	SBE	OE	XE	NE	LE
	Z	Z	Z		Z	Z	Z		ZC	ZC	ZC	ZC	Z	Z	Z	Z
3			LMXL		RET	RETI	JMPEA	RMD	RBMD				SBMD			
			Z			ZC						Z				Z
4	EXSX	EXSY	EXSE		LX	LY	EXE	EX	LBD	STBD						
					Z	Z										
5				STD	STX	STY	STE	ST		ICEA		EDI	LXY	STXY		
										C						
6	ICM	ICMD	ROUT		DCM	DCMD	SOUT		PSHEA	PSHXY	JNZ	JNC	POPEA	POPXY	JZ	JC
	ZC	ZC			ZC	ZC										
7			OUT	IN		LXSXI	LEAI	LXYI	JBZ				JBNZ			
8		WTTC	WTTB			RDBC			CALS							
9	CALL															
A	JMP															
B	CYIJ															
																Z
C	LYI															
D	AI															
																ZC
E	CI															
																ZC
F	LI															

NJM4556D
NJM4560D (DUAL OP. AMPS) [JRC]


V+
V-
1
2
3
4
5
6
7
8
OUTPUT

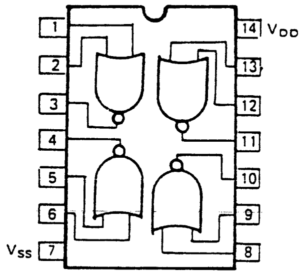
MN4028BP (BINARY TO OCTAL DECODER) [MATSUSHITA]


10 A
13 B
12 C
11 D
Q0 3
Q1 14
Q2 2
Q3 15
Q4 1
Q5 6
Q6 7
Q7 4
Q8 9
Q9 5
VDD : 16, VSS : 8

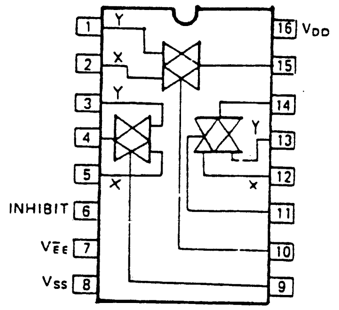
INPUTS				SELECTED OUTPUT "H"
D	C	B	A	
L	L	L	L	Q_0
L	L	L	H	Q_1
L	L	H	L	Q_2
L	L	H	H	Q_3
L	H	L	L	Q_4
L	H	L	H	Q_5
L	H	H	L	Q_6
L	H	H	H	Q_7
H	※	※	L	Q_8
H	※	※	H	Q_9

※ Don't care

TC4001BP (QUAD 2-1NPUT POSITIVE NOR GATE) [TOSHIBA]

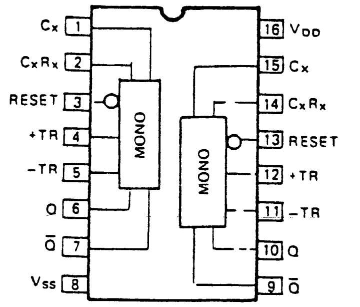

1
2
3
4
5
6
Vss 7
14 VDD
13
12
11
10
9
8

TC4053BP (TRIPPLE 2-CHANNEL MULTIPLEXER/DEMULTIPCEXER) [TOSHIBA]

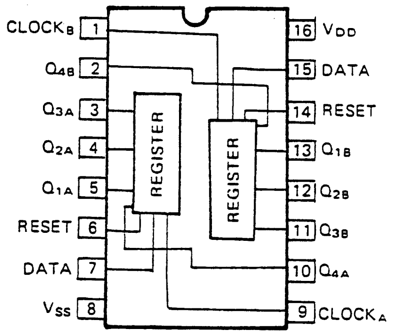

1
2
3
4
5
INHIBIT 6
VEE 7
Vss 8
16 VDD
15
14
13
12
11
10
9
X
Y

CONTROL H : Y OUTPUT

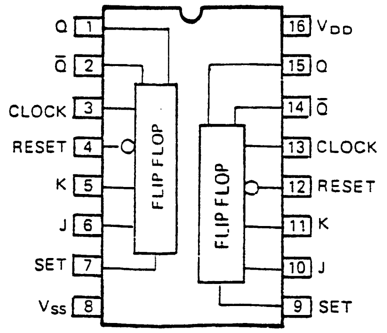
TC4528BP (DUAL MONOSTABLE MULTIVIBRATOR) [TOSHIBA]


Cx 1
CxRx 2
RESET 3
+TR 4
-TR 5
Q 6
Q̄ 7
Vss 8
16 VDD
15 Cx
14 CxRx
13 RESET
12 +TR
11 -TR
10 Q
9 Q̄
MONO
MONO

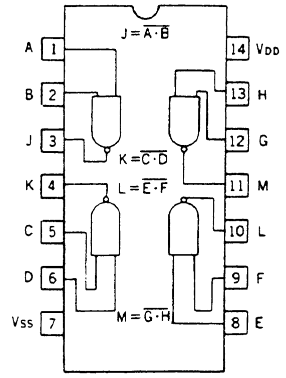
TC4015BP (SHIFT REGISTER) [TOSHIBA]

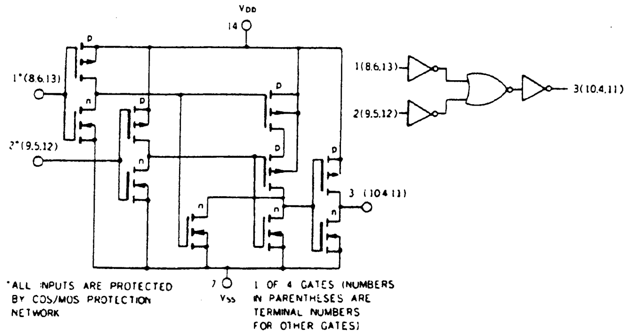

CLOCKB 1
Q4B 2
Q3A 3
Q2A 4
Q1A 5
RESET 6
DATA 7
Vss 8
16 VDD
15 DATA
14 RESET
13 Q1B
12 Q2B
11 Q3B
10 Q4A
9 CLOCKA
REGISTER
REGISTER

TC4027BP (J-K PLIP-FLOP) [TOSHIBA]


Q 1
Q̄ 2
CLOCK 3
RESET 4
K 5
J 6
SET 7
Vss 8
16 VDD
15 Q
14 Q̄
13 CLOCK
12 RESET
11 K
10 J
9 SET
FLIP FLOP
FLIP FLOP

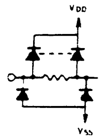
TC4011BP (QUAD 2-INPUT POSITIVE NAND GATE) [TOSHIBA]


A 1
B 2
J 3
K 4
C 5
D 6
Vss 7
14 VDD
13 H
12 G
11 M
10 L
9 F
8 E
J = $\overline{A \cdot B}$
K = $\overline{C \cdot D}$
L = $\overline{E \cdot F}$
M = $\overline{G \cdot H}$

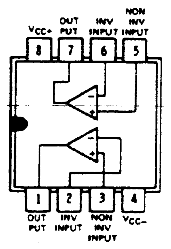

VDD
14
1*(8.6.13)
2*(9.5.12)
p
n
3 (10.4.11)
7
Vss
1(8.6.13)
2(9.5.12)
3(10.4.11)

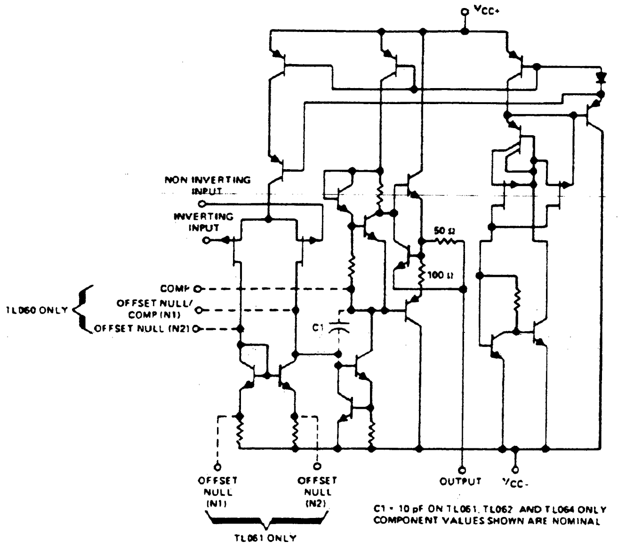
*ALL INPUTS ARE PROTECTED BY COS/MOS PROTECTION NETWORK

1 OF 4 GATES (NUMBERS IN PARENTHESES ARE TERMINAL NUMBERS FOR OTHER GATES)



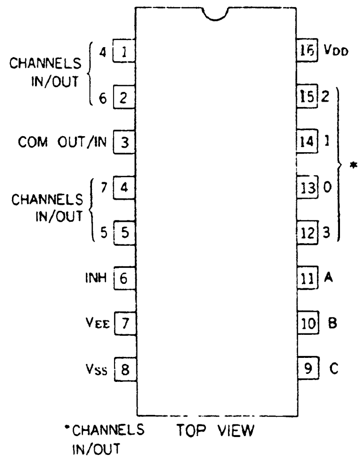
TL062CP (TEXAS)


VCC+
OUT PUT
INV INPUT
NON INV INPUT
8
7
6
5
1
2
3
4
OUT PUT
INV INPUT
NON INV INPUT
VCC-

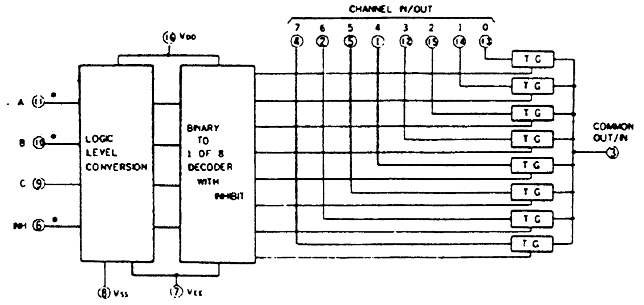

VCC+
NON INVERTING INPUT
INVERTING INPUT
50 Ω
100 Ω
TL060 ONLY
COMP
OFFSET NULL/ COMP (N1)
OFFSET NULL (N2)
C1
OFFSET NULL (N1)
OFFSET NULL (N2)
TL061 ONLY
OUTPUT
VCC-

C1 = 10 pF ON TL061, TL062 AND TL064 ONLY
COMPONENT VALUES SHOWN ARE NOMINAL

TC4051BP (MULTIPLEXER/DEMULTIPLEXER) [TOSHIBA]


CHANNELS IN/OUT
4 1
6 2
COM OUT/IN 3
CHANNELS IN/OUT
7 4
5 5
INH 6
VEE 7
VSS 8
16 VDD
15 2
14 1
13 0
12 3
11 A
10 B
9 C
*
*CHANNELS IN/OUT
TOP VIEW

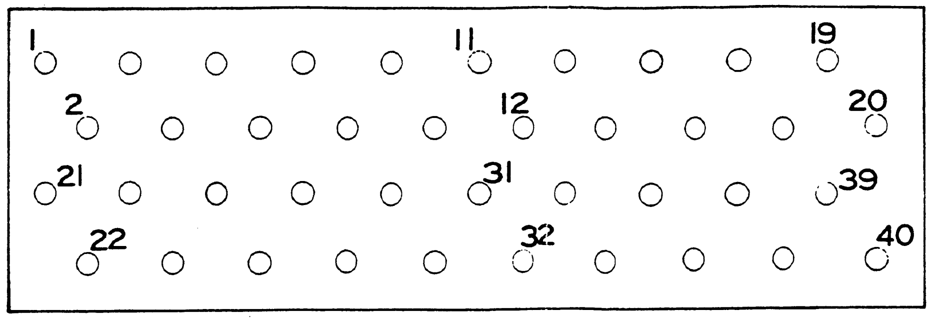
Block Diagram


⑯ VDD
A ⑪ *
B ⑩ *
C ⑨
INH ⑥ *
LOGIC LEVEL CONVERSION
BINARY TO 1 OF 8 DECODER WITH INHIBIT
⑧ VSS
⑦ VEE
CHANNEL IN/OUT
7 6 5 4 3 2 1 0
④ ② ⑤ ① ⑫ ⑮ ⑭ ⑬
T G
COMMON OUT/IN
③

TRUTH TABLE

INPUT STATES				"ON" CHANNEL(S)
INHIBIT	C	B	A	
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	X	X	X	NONE

X = Don't care



Camera Adaptor (19 Pins) Wirings

Pin No.	Function	Description
A	+140 V Common	To DC-DC Convertor (12 V output)
B	+140 V Hot	
C	Composite Video Output	Output to RCU
D	Video Ground	
E	B Video Output	
F	G "	
G	R "	
H	Command Signal	From RCU (Digital Command)
J	Genlock Signal	
K	Aux Video Signal	
L	H-PHASE Control	DC control
M	Ground	Shield
N	Inter Com	Mike
P	"	Earphone
R	Audio (H)	Output to RCU
S	Video Ground	VBS, R,G,B
T	"	Aux, Genlock
U	Intercom (C)	
V	Audio (C)	Output to RCU

Camera RM Connector (4 Pins) Wirings

Pin No.	Function	Description
1	Ground	
2		
3	Iris Auto/Manu.	Auto : −0.6 V, Manu. : +12 V
4	R-V Shift Control	Auto/Memory : 0 V, Manu. : −2 to +2 V
5	R-Video Output	Without Sync
6	R-H Shift Control	Auto/Memory : 0 V, Manu. : −7 V to +7 V
7	Contour Switch	ON : 0 V, OFF : +8 V to +12 V
8	B-V Shift Control	Auto/Memory : 0 V, Manu. : −2 V to +2 V
9	G-Video Output	Without Sync
10	B-H Shift Control	Auto/Memory : 0 V, Manu. : −7 V to +7 V
11	As Switch	Manu./Memory : 0 V, Auto : +12 V
12	H. Phase Control	
13	B-Video Output	
14	Function Switch	From Camera Head (−9 V)
15	Hi-Sens Switch	0 dB : −7.5 V, 9 dB : 0 V, 18 dB : +7.5 V
16	Function Switch	To Camera Head (−9 V)
17	Video Output	Composite Video Output
18	Video Ground	
19	+12 V	To Camera Head Power
20		
21	Ground	Composite Video Input
22		
23	Aux Video Input	
24	Video Ground	
25	Gen Lock Signal	
26	RM Control	Gnd
27	−	
28	Iris Control	Auto : 0 V, Manu. : −2 V to +8 V
29	Mic (G)	
30	Master Black	−7 ⟋ +7
31	Mic (H)	
32	R Gain	Auto/Preset : 0 V, Manu : −5 V to +5 V
33	−	
34	B Gain	Auto : 7.7 V Preset : 0 V, Manu : −2.3 to +2.3 V
35	Tally/Intercom/Call	
36	R Black	Auto : 0 V, Manu. : −7 V to +7 V
37	AW/AB Bars	Bars SW "ON" : 0 V Bars SW "OFF" : AW : +4 V ± 0.5 V Memory : +1 to +1.5 V AB : +1.5 V to +2.5 V Manu : +1 to +1.5 V
38	B Black	Auto : 0 V, Manu. : −7 V to +7 V
39	+12 V	To Camera Head Power
40		

6-12

SECTION 7
ELECTRICAL PARTS LIST

Page

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SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers. For maximum reliability and performance, all other replacement parts should be identical to those specified.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

RESISTORS – All resistance values are in ohms (Ω).

K : 1 000
M : 1 000 000
CR : Carbon Resistor
Comp. R : Composition Resistor
WR : Wire Wound Resistor
OMR : Oxide Metal Film Resistor
VR : Variable Resistor (Potentiometer)
MFR : Metal Film Resistor
FR : Fusible Resistor

CAPACITORS – All capacitance values are in μF, unless otherwise indicated.

P : μμF
C Cap : Ceramic Capacitor
E Cap : Electrolytic Capacitor
FM Cap : Film Mica Capacitor
MM Cap : Metalized Mylar Capacitor
MP Cap : Metalized Paper Capacitor
MY Cap : Mylar Capacitor
NP Cap : Non-polar Capacitor
PC Cap : Polycarbonate Capacitor
PP Cap : Poly Pro Capacitor
PS Cap : Polystyrol Capacitor
T Cap : Tantalum Capacitor
TR Cap : Trimmer Capacitor

7.1 STANDARD PART NUMBER CODING

7.1.1 Chip Resistors (Metal Glaze Resistor)

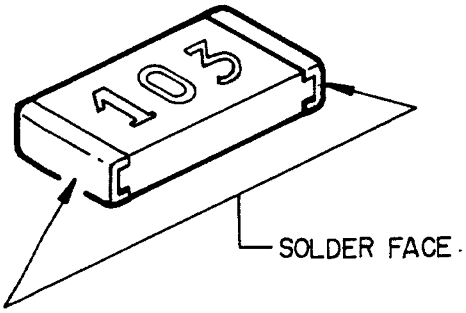

Fig. 7-1

- Resistance values are indicated in code on the side opposite to that facing the PC board. Since resistance values are not indicated in the parts list, use this coding table to identify them.
- Parts are supplied in packs of 5 units.
- Alternative method of replacement is to substitute chip resistors with ordinary carbon resistors type QRD167J.
- Rated wattage is 1/8 W.

7.1.2 Chip Capacitors (Ceramic Capacitor)

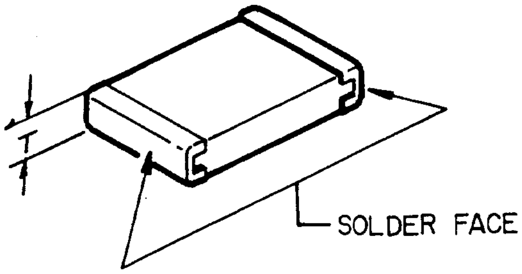

Fig. 7-2

- Capacitance values are not indicated on parts. Refer to schematic diagrams or parts list for capacitance.
- Parts are supplied in packs of 5 units.
- Rated voltage is 50 V.

T : Varies depending on capacitance values.

QRS188$\boxed{J}$-☐☐☐

1/8W Chip Resistor Code   Tolerance   Resistance Value

Symbol	Tolerance	
J	± 5 %	⇨ Standard
K	± 10 %	
M	± 20 %	

Examples:

R47	0.47 Ω
4R7	4.7 Ω
470	47 Ω
471	470 Ω
472	4.7 kΩ
473	47 kΩ
474	470 kΩ
475	4.7 MΩ

7.2 REMOTE CONTROL UNIT

7.2.1 CM Board Ass'y

Symbol No.	Part No.	Part Name	Description
IC 1	MN1541VVU-2	Integrated Circuit	MATSUSHITA
IC 2	TC4051BP	"	TOSHIBA
IC 3	"	"	"
IC 4	TL062CP	"	TEXAS
IC 5	SCV0520-001	"	JVC
IC77	SM3660-002	LSI Socket	
Q 1	2SA564(R)	Si. Transistor	
Q 2	2SC828(R)	"	
D 1	MA165	Si. Diode	
D 2	"	"	
X 1	SSV0050	Crystal	
R 1	QRD161J-472	CR	4.7 K 1/6 W
R 2	" -472	"	4.7 K "
R 3	" -472	"	4.7 K "
R 4	" -472	"	4.7 K "
R 5	" -472	"	4.7 K "
R 6	" -473	"	47 K "
R 7	" -473	"	47 K "
R 8	" -472	"	4.7 K "
R 9	" -473	"	47 K "
R10	" -473	"	47 K "
R11	" -472	"	4.7 K "
R12	" -473	"	47 K "
R13	" -473	"	47 K "
R14	" -472	"	4.7 K "
R15	—	—	
R16	QRD161J-472	CR	4.7 K 1/6 W
R17	" -473	"	47 K "
R18	" -473	"	47 K "
R19	" -472	"	4.7 K "
R20	" -473	"	47 K "
R21	" -153	"	15 K "
R22	" -472	"	4.7 K "
R23	" -472	"	4.7 K "
R24	" -472	"	4.7 K "
R25	" -472	"	4.7 K "
R26	" -472	"	4.7 K "
R27	" -472	"	4.7 K "
R28	" -101	"	100 "
R29	" -101	"	100 "
R30	" -472	"	4.7 K "
R31	" -472	"	4.7 K "
R32	" -473	"	47 K "
R33	" -102	"	1 K "

Symbol No.	Part No.	Part Name	Description
R34	QRD161J-102	CR	1 K 1/6 W
R35	" -103	"	10 K "
R36	" -103	"	10 K "
R37	" -104	"	100 K "
R38	" -473	"	47 K "
R39	" -472	"	4.7 K "
R40	" -101	"	100 "
R41	" -471	"	470 "
R42	" -472	"	4.7 K "
R43	" -470	"	47 "
R44	" -470	"	47 "
R45	" -470	"	47 "
C 1	QER41CM-476	E Cap	47 16 V
C 2	QFN41HK-103	MY Cap	0.01 50 V
C 3	" -103	"	0.01 "
C 4	" -103	"	0.01 "
C 5	" -103	"	0.01 "
C 6	" -103	"	0.01 "
C 7	" -103	"	0.01 "
C 8	" -103	"	0.01 "
C 9	" -103	"	0.01 "
C10	" -103	"	0.01 "
C11	" -103	"	0.01 "
C12	" -103	"	0.01 "
C13	" -103	"	0.01 "
C14	" -103	"	0.01 "
C15	" -103	"	0.01 "
C16	" -103	"	0.01 "
C17	" -103	"	0.01 "
C18	" -103	"	0.01 "
C19	" -103	"	0.01 "
C20	" -103	"	0.01 "
C21	" -103	"	0.01 "
C22	" -103	"	0.01 "
C23	" -103	"	0.01 "
C24	QCR31HJ-330	C Cap	33 p "
C25	" -1018	"	100 p "
C26	QER41HM-105	E Cap	1 "
C27	QER41CM-476	"	47 16 V
C28	" -476	"	47 "
C29	" -476	"	47 "
CN14	SCV0055-00P	Connector	
CN26	SS30662-002	Post Header	

7.2.2 FR Board Ass'y

Symbol No.	Part No.	Part Name	Description
Q 1	2SC828(R)	Si. Transistor	
Q 2	2SA564(R)	"	
Q 3	2SB641R	"	
Q 4	2SC2647C	"	
D 1	SLR-54UR5	L.E.D.	
D 2	"	"	
D 3	"	"	
R 1	QVG4A2B-014V	VR	10 K
R 2	SCV0379-103	"	10 K
R 3	" -103	"	10 K
R 4	" -103	"	10 K
R 5	" -103	"	10 K
R 6	SCV0515-103	"	10 K
R 7	" -103	"	10 K
R 8	" -103	"	10 K
R 9	" -103	"	10 K
R10	QVG4A2B-014	"	10 K
R11	SCV0379-202	"	2 K
R12	" -104	"	100 K
R13	" -103	"	10 K
R14	SCV0515-202	"	2 K
R15	QRD161J-102	CR	1 K 1/6 W
R16	" -102	"	1 K "
R17	" -102	"	1 K "
R18	" -102	"	1 K "
R19	" -102	"	1 K "
R20	" -102	"	1 K "
R21	" -102	"	1 K "
R22	" -102	"	1 K "
R23	" -102	"	1 K "
R24	" -102	"	1 K "
R25	–	–	
R26	QRD161J-272	CR	2.7 K 1/6 W
R27	" -392	"	3.9 K "
R28	QRD161J-472	CR	4.7 K "
R29	" -472	"	4.7 K "
R30	" -472	"	4.7 K "
R31	" -472	"	4.7 K "
R32	" -102	"	1 K "
R33	" -102	"	1 K "
R34	" -102	"	1 K "
R35	" -102	"	1 K "
R36	" -152	"	1.5 K "
R37	" -102	"	1 K "
R38	" -472	"	4.7 K "
R39	" -562	"	5.6 K "
R40	" -272	"	2.7 K "
R41	" -153	"	15 K "
R42	" -473	"	47 K "
R43	" -222	"	2.2 K "
R44	–	–	
R45	–	–	
R46	QRD161J-103	CR	10 K 1/6 W
R47	" -103	"	10 K "
R48	" -821	"	820 "

Symbol No.	Part No.	Part Name	Description
R49	QRD161J-102	CR	1 K 1/6 W
R50	" -102	"	1 K "
R51	" -102	"	1 K "
R52	" -103	"	10 K "
R53	" -560	"	56 "
R54	–	–	
R55	QRD161J-153	CR	15 K 1/6 W
R56	" -683	"	68 K "
R57	" -123	"	12 K "
R58	" -332	"	3.3 K "
R59	" -272	"	2.7 K "
R60	" -681	"	680 "
R61	–	–	
R62	–	–	
C 1	QFN41HK-104	MY Cap	0.1 μF 50 V
C 2	" -104	"	0.1 μF "
C 3	" -104	"	0.1 μF "
SW 1	SCV0516-A23JB2	Switch	
SW 2	SCV0338-002	"	
SW 3	SCV0337-002	"	
SW 4	" -002	"	
SW 5	SCV0516-A18JB2	"	
SW 6	SCV0339-002	"	
SW 7	SCV0516-A19JB2	"	
SW 8	SCV0337-001	"	
SW 9	SCV0516-A15JB2	"	
SW10	SCV0337-002	"	
SW11	SCV0539-001	Slide Switch	
SW12	SCV0517-101	BCD Switch	
SW13	" -101	"	
SW14	SCV0337-002	Switch	
CN14	SS30644-003	Post Header	

7.2.3 VBS/R/G/B Board Ass'y

Symbol No.	Part No.	Part Name	Description
IC 1	TC4028BP	Integrated Circuit	
Q 1	2SC2295(B)	Si. Transistor	
Q 2	"	"	
Q 3	2SK198(Q)	F.E.T.	
Q 4	"	"	
Q 5	"	"	
Q 6	"	"	
Q 7	"	"	
Q 8	"	"	
Q 9	"	"	
Q10	"	"	
Q11	"	"	
Q12	"	"	
Q13	"	"	
Q14	"	"	
Q15	"	"	
Q16	2SA1022(B)	Si. Transistor	
Q17	2SC2295(B)	"	
Q18	2SA1022(B)	"	
Q19	2SK198(Q)	F.E.T.	
Q20	2SC828(Q)	Si. Transistor	
Q21	"	"	
L 3	SCV0331-100	Coil	10
L 4	" -100	"	10
D 1	HZ12C2L	Ze. Diode	12 V
D 2	SVC321(A)	Si. Diode	
R 1	QRV141F-47ROA	MF Resistor	47 1/4 W F
R 6	SCV0393-501	VR	500
R40	SCV0379-103	VR	5 K
R54	QRV141F-75ROA	MF Resistor	75 1/4 W F
R55	" -75ROA	"	75 "
C 1	QER40JM-107	E Cap	100 6.3 V
C 2	QER41CM-476	"	47 16 V
C 3	QCS41HJ-121	C Cap	120 p 50 V
C 4	" -181	"	180 p "
C 5	" -150	" (RGB only)	15 p "
C 6	" -820	"	82 p "
C 7	" -181	"	180 p "
C 8	–	–	
C 9	QCS41HJ-470	C Cap	47 p 50 V
C10	" -151	"	150 p "
C11	" -181	"	180 p "
C12	" -151	"	150 p "
C13	" -181	"	180 p "
C14	" -151	"	150 p "
C15	" -121	"	120 p "
C16	QER40JM-107	E Cap	100 6.3 V
C17	QAT3001-061	T Cap (RGB only)	60 P
C18	QCS41HJ-221	C Cap	220 P 50 V
C19	" -820	"	82 P "
C20	" -330	"	33 p "
C21	QER41CM-476	E Cap	47 16 V
C22	QCF41HZ-104	C Cap	100 p 50 V
C23	QER41CM-476	E Cap	47 16 V
C24	QCF41HZ-105	C Cap	0.1 p 50 V
C25	QCS41HJ-151	"	150 p "
C26	" -151	"	150 p
C27	" -101	" (RGB only)	100 p
C28	–	–	
C29	QCS41HJ-150	C Cap	15 p 50 V
C35	QCY41HK-103	C Cap	0.01 "
C36	" -103	"	0.01 "
C37	QCS41HJ-181	"	180 P "

7.2.4 AUX/GEN Board Ass'y

Symbol No.	Part No.	Part Name	Description
IC 1	TC4028BP	Integrated Circuit	
Q 1	2SC2295(B)	Si. Transistor	
Q 2	"	"	
Q 3	2SK198(Q)	F.E.T.	
Q 4	"	"	
Q 5	"	"	
Q 6	"	"	
Q 7	"	"	
Q 8	"	"	
Q16	2SA1022(B)	Si. Transistor	
Q17	2SC2295(B)	"	
Q18	2SA1022(B)	"	
Q19	–	–	
Q20	2SC828(R)	Si. Transistor	
Q21	"	"	
D 1	HZ12C2L	Ze. Diode	5 V
R40	SCV0379-103	VR	10 K
R55	QRV141F-47R0A	MFR	47 1/4 W F
L 1	SCV0331-221	Coil	
L 2	" -101	" (AUX only)	
L 3	" -100	"	
L 4	" -100	"	
C 1	QER40JM-107	E Cap	100 50 V
C 2	QER41CM-476	"	47 "
C 3	QCS41HJ-271	C Cap	270 p "
C 4	" -151	"	150 p "
C 5	" -330	" (AUX only)	33 p "
C16	QER40JM-107	E Cap	100 6.3 V
C17	QAT3001-026	T Cap (AUX only)	
C18	QCS41HJ-180	C Cap	18 p
C20	QCS41HJ-120	C Cap	12 p 50 V
C21	QER41CM-476	E Cap	47 16 V
C22	QCF41HZ-104	C Cap	0.1 50 V
C23	QER41CM-476	E Cap	47 16 V
C24	QCF41HZ-104	C Cap	0.1 50 V
C32	QCS41HJ-150	"	15 p "

7.2.5 TE Board Ass'y

Symbol No.	Part No.	Part Name	Description
IC 1	TC4028BP	Integrated Circuit	TOSHIBA
IC 2	TC4027BP	"	"
IC 3	TC4015BP	"	"
IC 4	TC4001BP	"	"
IC 5	TC4011BP	"	"
IC 6	NJM4560D	"	JRC
Q 1	2SK198(Q)	F.E.T.	
Q 2	"	"	
Q 3	"	"	
Q 4	–	–	
Q 5	2SC2295(B)	Si. Transistor	
Q 6	2SA1022(B)	"	
Q 7	2SK198(Q)	F.E.T.	
Q 8	"	"	
Q 9	"	"	
Q10	"	"	
Q11	"	"	
Q12	"	"	
Q13	2SC2295(B)	Si. Transistor	
Q14	"	"	
Q15	2SA1022(B)	"	
Q16	2SK198(Q)	F.E.T.	
Q17	2SC2295(B)	Si. Transistor	
Q18	"	"	
Q19	2SA1022(B)	"	
Q20	2SB710(Q)	"	
Q21	2SK198(Q)	F.E.T.	
Q22	2SA1022(B)	Si. Transistor	
Q23	2SK198(Q)	F.E.T.	
Q24	2SC2295(B)	Si. Transistor	
Q25	2SD813(Q)	"	
Q26	–	–	
Q27	2SC828(R)	Si. Transistor	
Q28	"	"	
Q29	2SK198(Q)	F.E.T.	
Q30	"	"	
Q31	–	–	
Q32	2SA1022(B)	Si. Transistor	
Q33	"	"	
Q34	"	"	
Q35	2SC2295(B)	"	
Q36	"	"	
Q37	2SA1022(B)	"	
Q38	"	"	
Q39	"	"	
Q40	"	"	
D 1	MA152A	Si. Diode	
R50	SCV0380-102	VR	1 K
R75	QRV141F-75R0A	MFR	75 1/4 W F
R97	SCV0379-202	VR	2 K
R100	" -202	"	2 K

Symbol No.	Part No.	Part Name	Description
C 1	QER41HM-105	E Cap	1 50 V
C 2	" -105	"	1 "
C 3	" -105	"	1 "
C 4	QER41EM-106	"	10 25 V
C 5	" -106	"	10 "
C 6	" -106	"	10 "
C 7	QER41CM-476	"	47 16 V
C 8	" -336	"	33 "
C 9	QER41EM-106	"	10 25 V
C10	" -336	"	33 "
C11	" -106	"	10 "
C12	" -106	"	10 "
C13	QCF41HZ-104	C Cap	0.1 50 V
C14	" -104	"	0.1 "
C15	QER41EM-106	E Cap	10 25 V
C16	QCS41HJ-220	C Cap	22 p 50 V
C17	QER41CM-476	E Cap	47 16 V
C18	" -476	"	47 "
C19	QCF41HZ-104	C Cap	0.1 50 V
C20	" -104	"	0.1 "
C21	QER41EM-106	E Cap	10 25 V
C22	" -106	"	10 "
C23	QCS41HJ-220	C Cap	22 p 50 V
C24	" -220	"	22p "
C25	" -220	"	22 p "
C26	" -100	"	10 p "
C27	QER41EM-106	E Cap	10p 25 V
C28	QCS41HJ-150	C Cap	15 p 50 V
C29	QER41EM-105	E Cap	1 25 V
C30	" -106	"	10 "
C31	" -106	"	10 "
C32	QCS41HJ-150	C Cap	15 p 50 V
L 1	SCV0331-470	Peaking Coil	47 μH
L 2	" -470	"	47 μH
L 3	" -470	"	47 μH
CN22	SCV0513-20S	Connector	
RY 1	SCV0438-001	Relay	
TP 1	SCV0345-001	Test Point	
TP 2	" -001	"	
TP 3	" -001	"	
TP 4	" -001	"	

7.2.6 PH Board Ass'y

Symbol No.	Part No.	Part Name	Description
IC 1	TC4528BP	Integrated Circuit	TOSHIBA
IC 2	"	"	"
IC 3	SCV0235-003	"	JVC
Q 1	2SC2295(B)	Si. Transistor	
Q 2	"	"	
Q 3	"	"	
Q 4	"	"	
Q 5	"	"	
Q 6	2SA1022(B)	"	
Q 7	2SC2295(B)	"	
Q 8	"	"	
Q 9	"	"	
Q10	2SA1022(B)	"	
Q11	2SC2295(B)	"	
Q12	2SA1022(B)	"	
Q13	2SC2295(B)	"	
Q14	"	"	
Q15	"	"	
Q16	2SC1906	"	
Q17	–	–	
Q18	2SC828(R)	Si. Transistor	
D 1	MA152A	Si. Diode	MATSUSHITA
D 2	"	"	"
R28	SCV0380-503	VR	50 K
R44	QRV141F-75R0A	MFR	75 1/4 W F
R53	SCV0379-503	VR	50 K
C 1	QEJ41VM-105	T Cap	1
C 2	–	–	
C 3	QER41HM-105	E Cap	1
C 4	QEJ41VM-105	T Cap	1
C 5	QCY41HK-103	C Cap	0.01 50 V
C 6	QCS41HJ-271	"	270 p "
C 7	" -102	"	1000 p "
C 8	" -820	"	82 p "
C 9	" -470	"	47 P "
C10	QCT05XK-101	" (PAL)	100 P
	" -151	" (NTSC)	150 p
C11	" -220	"	22 p
C12	QFN41HK-473	MY Cap	0.01 50 V
C13	QFF41HK-151	FM Cap (PAL)	150 p "
	" -221	" (NTSC)	220 p
C14	" -560	" (PAL)	56 P
	" -820	" (NTSC)	82 p
C15	QCT05XK-560	"	56 p
C16	QCY41HK-103	C Cap	0.01 50 V
C17	" -104	"	0.1 "
C18	–	–	
C19	QEPA1HM-105	E Cap	1 50 V
C20	QER41CM-476	"	47 16 V
C21	" -476	"	47 "
C22	QCF41HZ-104	C Cap	0.1 50 V
C23	QER41CM-476	E Cap	47 16 V
C24	QCF41HZ-104	C Cap	0.1 50 V
C25	QCS41HJ-120	"	12 P "
L 1	PU48530-120K	Peaking Coil	12 µH
L 2	" -560K	" (PAL)	56 µH
	" -820K	" (NTSC)	82 µH
TP 1	SCV0345-001	Test Point	
TP 2	" -001	"	
TP 3	" -001	"	
TP 4	" -001	"	
CN11	SS30644-006	Post Header	
CN23	SCV0513-20S	Connector	

7.2.7 MT Board Ass'y

Symbol No.	Part No.	Part Name	Description
IC 1	NJM4556D	Integrated Circuit	JRC
IC 2	″	″	″
IC 3	–	–	
IC 4	TC4053BP	Integrated Circuit	TOSHIBA
Q 1	2SC828(R)	Si. Transistor	
Q 2	2SA684(R)	″	
D 1	RB-151	Si. Diode	
D 2	MA165	″	
D 3	–	–	
D 4	–	–	
D 5	MA26W	Si Diode	
D 6	″	″	
D 7	–	–	
D 8	MA26W	Si Diode	
D 9	″	″	
D10	″	″	
D11	″	″	
R 1	–	–	
R 2	–	–	
R 3	–	–	
R 4	–	–	
R 5	QRD161J-471	CR	470 1/6 W
R 6	″ -220	″	22 ″
R 7	″ -332	″	3.3 K ″
R 8	″ -471	″	470 ″
R 9	–	–	
R10	–	–	
R11	QRD161J-473	CR	47 K 1/6 W
R12	SCV0222-503	VR	50 K
R13	QRD161J-223	CR	22 K 1/6 W
R14	″ -393	″	39 K ″
R15	″ -334	″	330 K ″
R16	″ -822	″	8.2 K ″
R17	SCV0222-503	VR	50 K
R18	QRD161J-563	CR	56 K 1/6 W
R19	″ -822	″	8.2 K ″
R20	″ -152	″	1.5 K ″
R21	–	–	
R22	–	–	
R23	QRD161J-473	CR	47 K 1/6 W
R24	SCV0222-503	VR	50 K
R25	QRD161J-223	CR	22 K 1/6 W
R26	″ -393	″	39 K ″
R27	″ -334	″	330 K ″
R28	″ -223	″	22 K ″
R29	″ -561	″	560 ″
R30	″ -101	″	100 ″
R31	″ -103	″	10 K ″
R32	″ -103	″	10 K ″
R33	″ -182	″	1.8 K ″
R34	″ -103	″	10 K ″
R35	″ -223	″	22 K ″
R36	″ -472	″	4.7 K ″
R37	–	–	
R38	–	–	
R39	–	–	
R40	QRD161J-473	CR	47 K 1/6 W
R41	″ -473	″	47 K ″
R42	″ -473	″	47 K ″
R43	QRV141F-75R0A	MFR	75 1/4 W
R44	QRD161J-561	CR	560 1/6 W
C 1	QER41HM-105	E Cap	1 50 V
C 2	QFM31HJ-104	MY Cap	0.1 ″
C 3	QER41CM-476	E Cap	47 16 V
C 4	QFM31HJ-104	MY Cap	0.1 50 V
C 5	QER41CM-476	E Cap	47 16 V
C 6	SCV0425-1C-106	NP Cap	10 ″
C 7	″ -106	″	10 ″
C 8	″ -106	″	10 ″
C 9	QER41CM-476	E Cap	47 16 V
C10	QFM31HJ-104	MY Cap	0.1 50 V
C11	QCS31HJ-561	C Cap	560 p ″
C12	″ -561	″	560 p ″
C13	″ -561	″	560 p ″
C14	QFN41HK-473	MY Cap	0.047 ″
C15	QFM31HJ-104	″	0.1 ″
C16	QFN41HK-104	″	0.1 ″
PH 1	TLP521-1	Photo Coupler	
T 2	SCV0514-001	Mic Trans.	
T 4	″ -001	″	
CN 3	SS30644-006	Post Header	
CN 4	″ -010	″	
CN 5	″ -003	″	
CN 6	–	–	
CN 7	SS30644-012	Post Header	
CN 8	″ -009	″	
CN 9	″ -005	″	
CN10	″ -008	″	
CN11	″ -003	″	
CN12	″ -010	″	
CN13	″ -004	″	
CN14	–	–	
CN15	–	–	
CN16	SCV0511-20P	Connector	
CN17	″ -20P	″	
CN18	″ -20P	″	
CN19	″ -20P	″	
CN20	″ -20P	″	
CN21	″ -20P	″	
CN22	″ -20P	″	
CN23	″ -20P	″	
SW 5	QSS2201-022	Slide Switch	
SW 7	SCV0255-001	″	

7.2.8 PS Board Ass'y

Symbol No.	Part No.	Part Name	Description
⚠ IC 1	HA17808P	Integrated Circuit	HITACHI
⚠ IC 2	"	"	"
⚠ IC 3	HA17805P	"	"
Q 1	2SC2238B(Y)	Transistor	
⚠ D 1	RB-154LFB	Si. Diode	
D 2	HZ12A1L	Ze. Diode	12 V
⚠ D 3	AC03DGM	Triac	
D 4	ERB12-02	Si. Diode	
D 5	RB-152LFB	"	
D 6	ERB12-02	"	
D 7	RB-152LFB	"	
D 8	ERB12-02	"	
D 9	RB-152LFB	"	
R 1	QRG026J-223	OMR	22 K
R 2	QRD161J-154	CR	150 K 1/6 W
R 3	" -680	"	68 "
R 4	QRD141J-104	"	100 K 1/4 W
R 5	QRD161J-222	"	2.2 K 1/6 W
R 6	SCV0222-201	VR	200
R 7	QRD161J-222	CR	2.2 K 1/6 W
R 8	SCV0222-201	VR	200
C 1	–	–	
C 2	QET41ER-107	E Cap	100 μF 25 V
C 3	QET41VR-475	"	4.7 μF 350 V
C 4	QEV71ER-478	"	4700 μF 25 V
C 5	QET41AR-476	"	47 μF 10 V
C 6	QET41CR-107	"	100 μF 16 V
C 7	QEV71ER-478	"	4700 μF 25 V
C 8	QET41AR-476	"	47 μF 10 V
C 9	QET41CR-107	"	100 μF 16 V
C10	" -228	"	2200 μF 16 V
CN 1	SS30810-002	Connector	
CN 2	" -006	"	
CN 3	SS30644-007	"	
CN25	SS30644-007	Post Header	
F 1	QMF51U1-2R5	Fuse (2.5 A)	+140 V (NTSC)
	QMF51A2-2R5-BS	" (")	(PAL)
F 2	QMF51U1-2R5	" (")	+9 V (NTSC)
	QMF51A2-2R5-BS	" (")	(PAL)
F 3	QMF51U1-1R6	" (1.6 A)	–9 V (NTSC)
	QMF51A2-1R6	" (")	(PAL)
F 4	QMF51U1-R40	" (400 mA)	+5 V (NTSC)
	QMF51A2-R40	" (")	(PAL)

No. 6372

JVC Service Manual

CAMERA ADAPTER

Dimensions : 100(W) x 165(H) x 109(D) mm
Weight : 1.1 kg (2.5 us lbs)

Note: This adapter is used exclusively for the remote control of a KY-950/KY-900/KY-310 camera from the RS-500 remote control unit.

SECTION 1
OPERATION

1.1 OPERATION INSTRUCTIONS AND SPECIFICATIONS

(See these items about RS-500 main unit described at the beginning of this book.)

SECTION 2
DISASSEMBLY

2.1 REMOVAL THE UPPER FRAME

1. Remove four screws ① on the sides of the upper frame.
2. Pull the upper frame up to remove it.

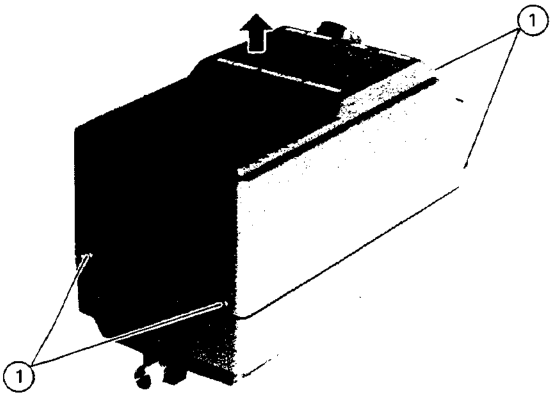

Fig. 2-1

2.2 REMOVING THE AD BOARD

1. Remove connectors Ⓐ, Ⓑ on the AD board.
2. Remove four board fixing screws ②.

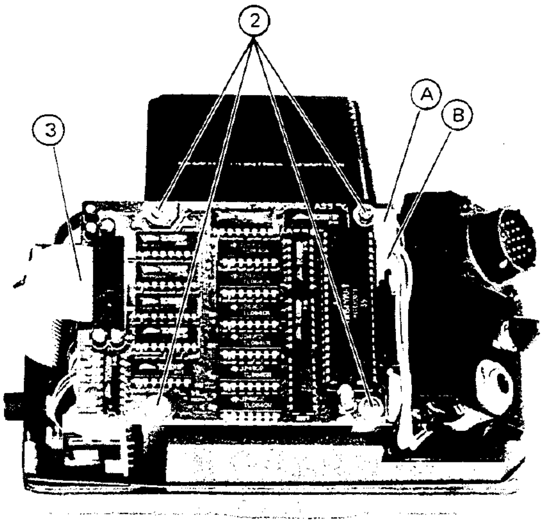

Fig. 2-2

Note: The AD board and CN board are connected with cable ③ and cannot be separated.

2.3 REMOVING THE FT BOARD

1. Remove connectors Ⓒ, Ⓓ, Ⓔ on the FT board.
2. Remove board fixing screw ④.

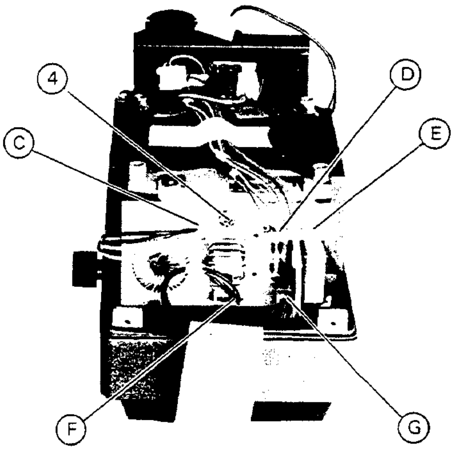

Fig. 2-3

2.4 REMOVING THE CN BOARD

1. Remove four screws ⑤ fixing the cover behind the bottom frame.
2. Remove the cover.

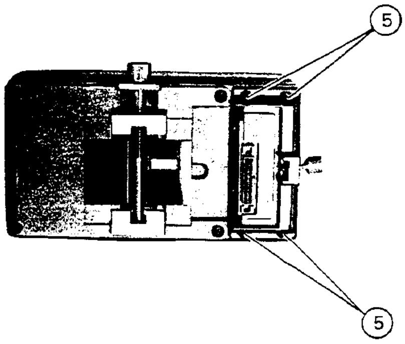

Fig. 2-4

3. Remove three board fixing screws ⑥ .

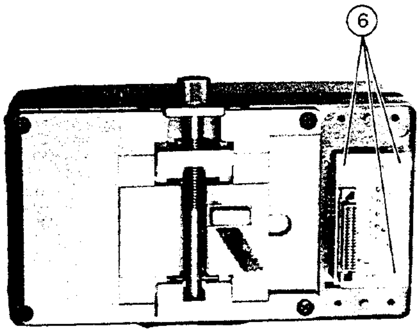

Fig. 2-5

Note: The CN board is not completely fixed on the bottom frame to guarantee a certain play for the connection with the camera: Do not use other screws.

2.5 REMOVING THE SW BOARD

1. Remove two screws ⑦ on the side of the bottom frame.

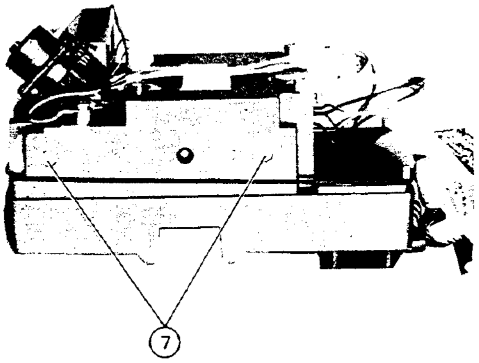

Fig. 2-6

2. Remove four screws ⑧ fixing the cover begind the bottom frme.
3. Remove the cover.

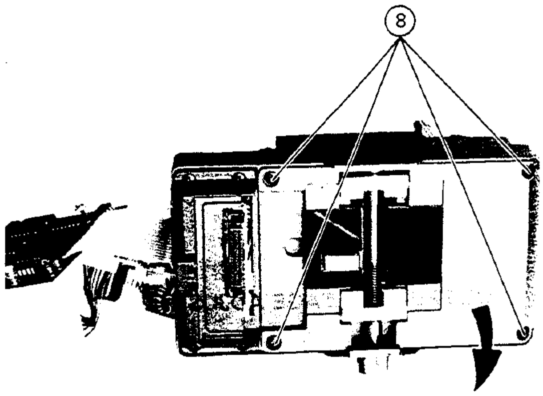

Fig. 2-7

4. Reomve two board fixing screws ⑨.

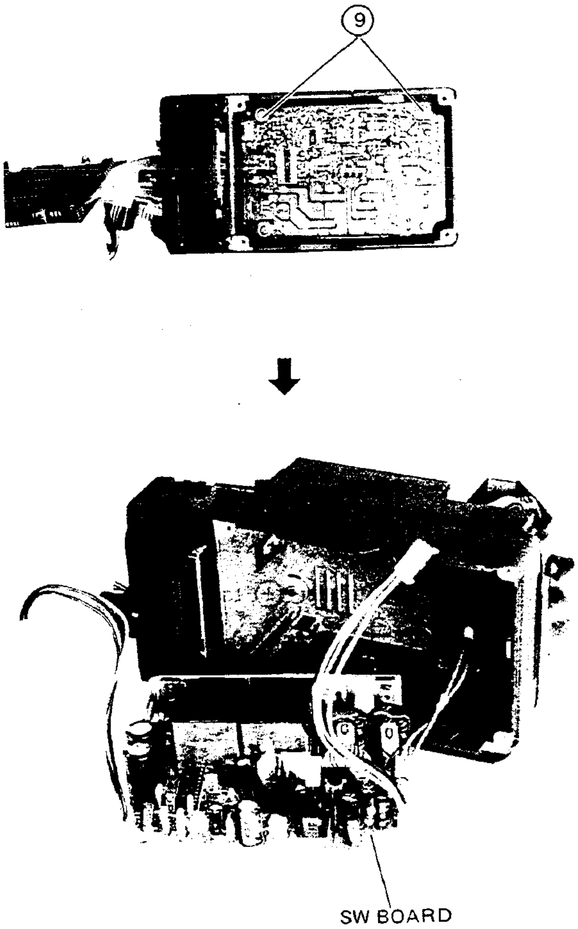

Fig. 2-8

SECTION 3
ADJUSTMENT

- Perform this adjustment after the adjustment of the RS-RS-500 main unit.
- Connect the RS-500 main unit and camera adaptor using cable VC-544 (20 m/65 ft).

3.1 OUTPUT VOLTAGE ADJUSTMENT

12 V ADJ

1. Remove the SW board following its disassembly procedure. Remove connectors CN11 and CN4 without disconnecting CN3.
2. Connect a 3.4 Ω/50 W load between pin ① and pin ④ of CN11.
3. Connect a voltmeter, ⊕ to pin ① and ⊖ to pin④.

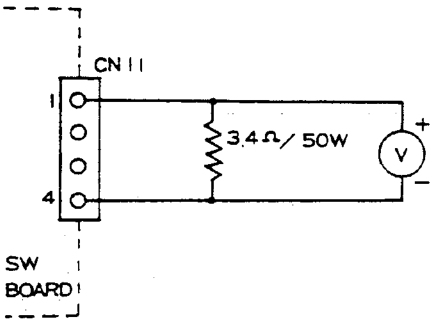

Fig. 3-1

4. Set the RS-500 main unit's POWER switch to ON and adjust the VR R17 (+12 V ADJ) so that the voltmeter indicates 12 V.
5. Connect a voltmeter ⊕ to pin ② and ⊖ to pin ⑤ of CN4.
6. Adjust the VR R28 (+5 V ADJ) so that the voltmeter indicates +5 V.

SECTION 4
EXPLODED VIEW AND PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety.
Replace only with specified part numbers.

CONTENTS

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4.1 STANDARD PART NUMBER CODING

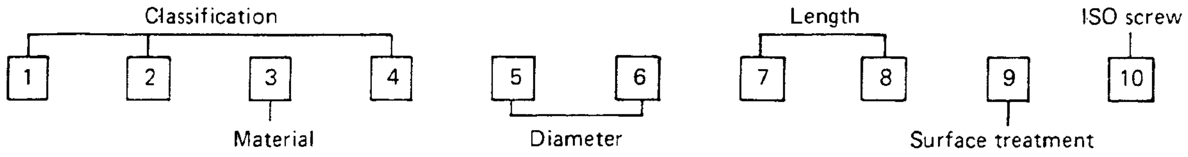
4.1.1 Screw coding . . . . 4 - 2

4.2 EXPLODED VIEWS AND PARTS LIST

4.2.1 Camera adaptor assembly . . . . 4 - 3

4.1 STANDARD PART NUMBER CODING

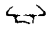
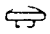
4.1.1 Screw coding



Classification (first digit)

Symbol Letter	Name
S	Normal screw
N	Assembly screw
L	"
D	"
M	Wood screw
F	Feather screw
T	Set screw
Y	"
B	Bolt
N	Nut
W	Washer
R	E-ring
E	Eyelet
P	Spring
G	Washer head screw

Shape of Screw Head (second digit)

Symbol Letter		Shape of Screw Head
P		Pan head
S		Flat countersunk head
H		Oval countersunk head
D		Binding head
R		Round head
B		Round head
T		Truss head

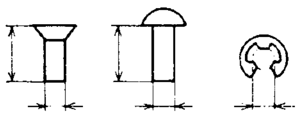
Material (third digit)

Symbol Letter	Material
S	Steel
E	Stainless steel
C	Cast iron
U	Bronze
B	Brass
P	Phosphor bronze
N	German silver
Y	Brass
A	Aluminum
Z	Zinc alloy
K	Polycarbonate

Type of Screw (fourth digit)

Symbol Letter	Type of Screw
P	Cross-Recessed head screw
A	Tapping screw
B	Special tapping screw
T	Thread rolling tapping screw
E	Special tapping screw
F	Special tapping screw

Diameter and Length of Screw (fifth – eighth digit)



– Example –

S P B P 3 0 0 6 Z S

(Diameter x 10) (Length)

Diameter : 3 mm

Length : 6 mm

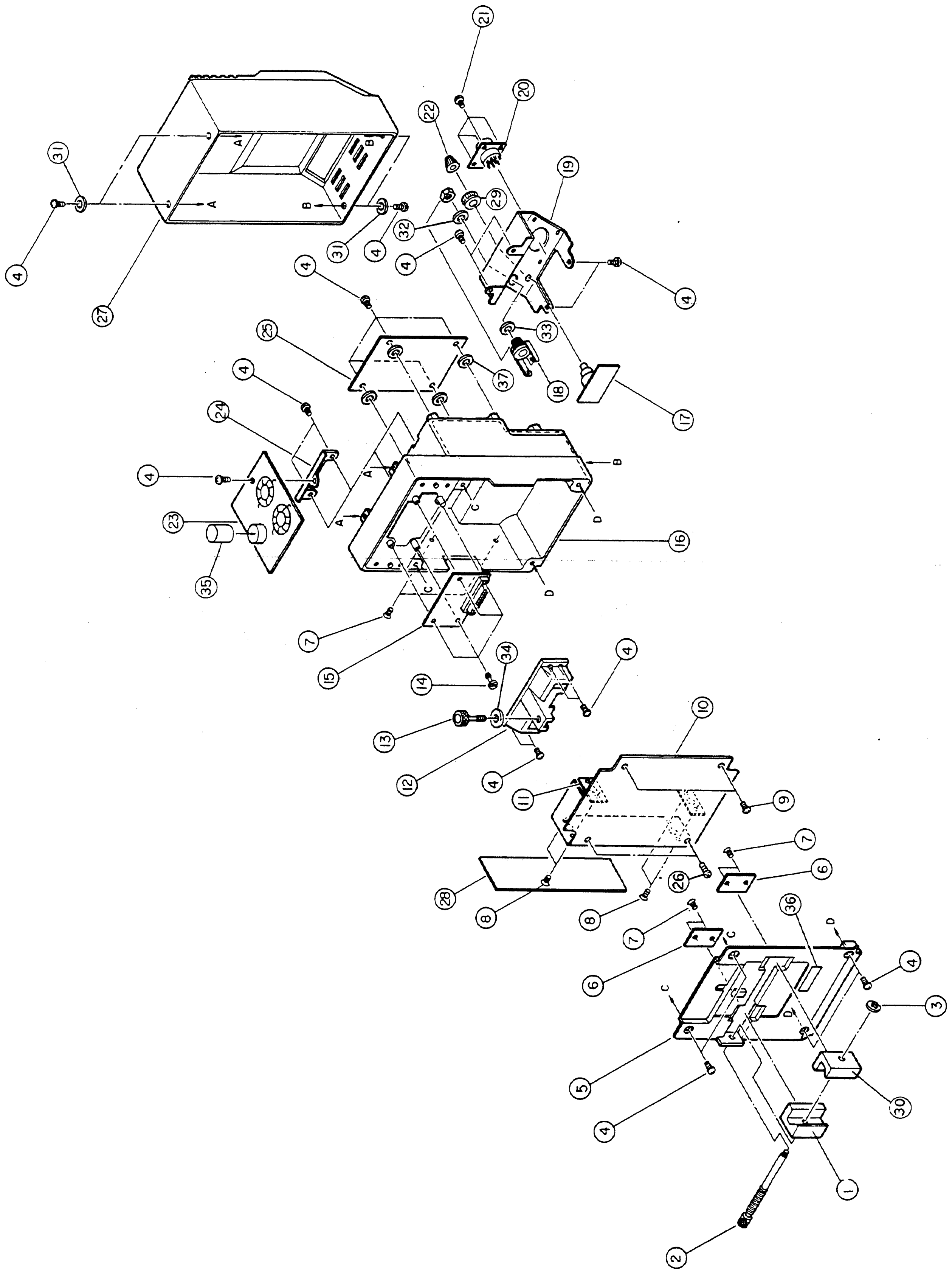
Surface Treatment (ninth digit)

Symbol Letter	Surface Treatment
Z	Galvanization, dichromic acid treatment (MFZn2-C)
N	Nickel plating (MFNi2, MFNil)
R	Chrome plating (MBCr2, MBCr1)
G	Silver plating (SP4)
W	Nichrome platings
P	Phosphite treatment
B	Bronze plating

Symbol letter	Surface treatment
M	Black coloring after galvanization
A	Red coloring after galvanization
C	Blue coloring after galvanization
T	Green coloring after galvanization
V	Violet coloring after galvanization
F	Iron with black coloring

4.2 EXPLODED VIEW AND PARTS LIST

4.2.1 Camera adaptor assembly



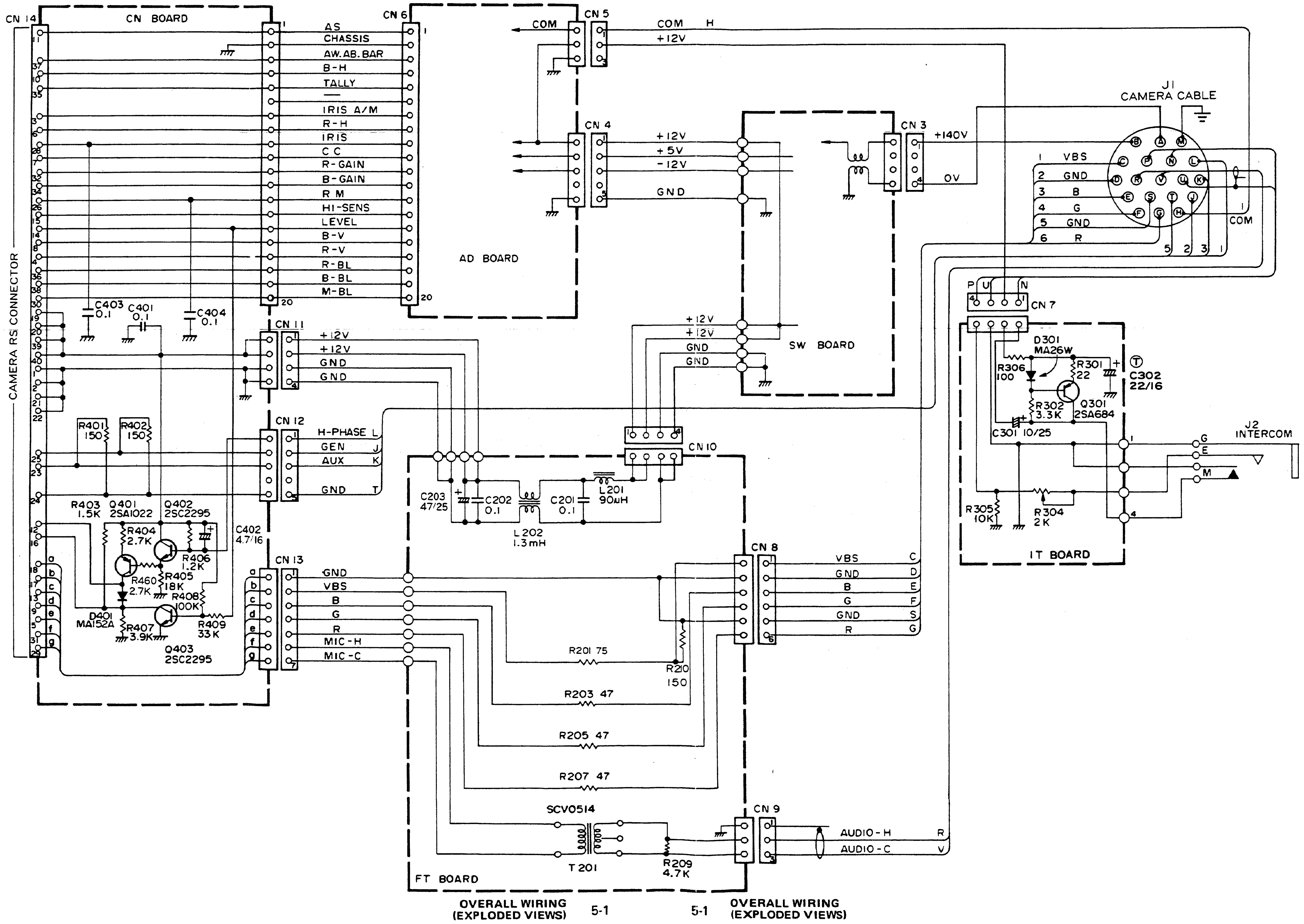
— Camera adaptor assembly parts list —

Symbol No.	Part No.	Part Name	Description
1	SC30431-011	Slide Base	
2	SC41175-001	Knob	
3	REE4000	E. Washer	
4	SDSP3006M	Screw	M3 x 6
5	SC30429-001	Cover	
6	SC41077-001	Plate	
7	SSSP3008	Screw	M3 x 8
8	SSSP2006N	"	M2 x 6
9	SPKP3006-9	"	M3 x 6
10	Not Available	SW Board Ass'y	04681
	SC41192-002	Nut	
12	SC30462-001	Guide	
13	SC41174-001	Knob	
14	SC41187-001	Screw	
15	Not Available	CN Board Ass'y	
16	SC20146-001	Bottom Frame	
17	Not Available	IN Board Ass'y	
18	GP43198-001	Incom Jack	
19	SC30461-001	MC Bracket	
⚠ 20	SCV0448-19P	C. Connector	
21	SDSP2606M	Screw	M2.6 x 6
22	SC40917-001	Knob	
23	Not Available	FT Board Ass'y	
24	NC41173-001	Bracket	
25	Not Available	AD Board Ass'y	
26	LPSP3010Z	Screw	M3 x 10
27	SC20147-001	Upper Frame	
28	SC41194-001	Sheet	
29	SC40916-002	Nut	
30	SC30431-021	Slide Base	
31	Q03093-115	Washer	
32	SC40518-001	Spacer	
33	SC40517-001	Base	
34	SC40772-001	Spring	
35	SC41263-001	Shield	
36	SM3921-001	Blank Label	
37	No. 20	Insulator	

SECTION 5
DIAGRAMS AND CIRCUIT BOARDS

A
B
C
D
E
F
G
H
1
2
3
4
5

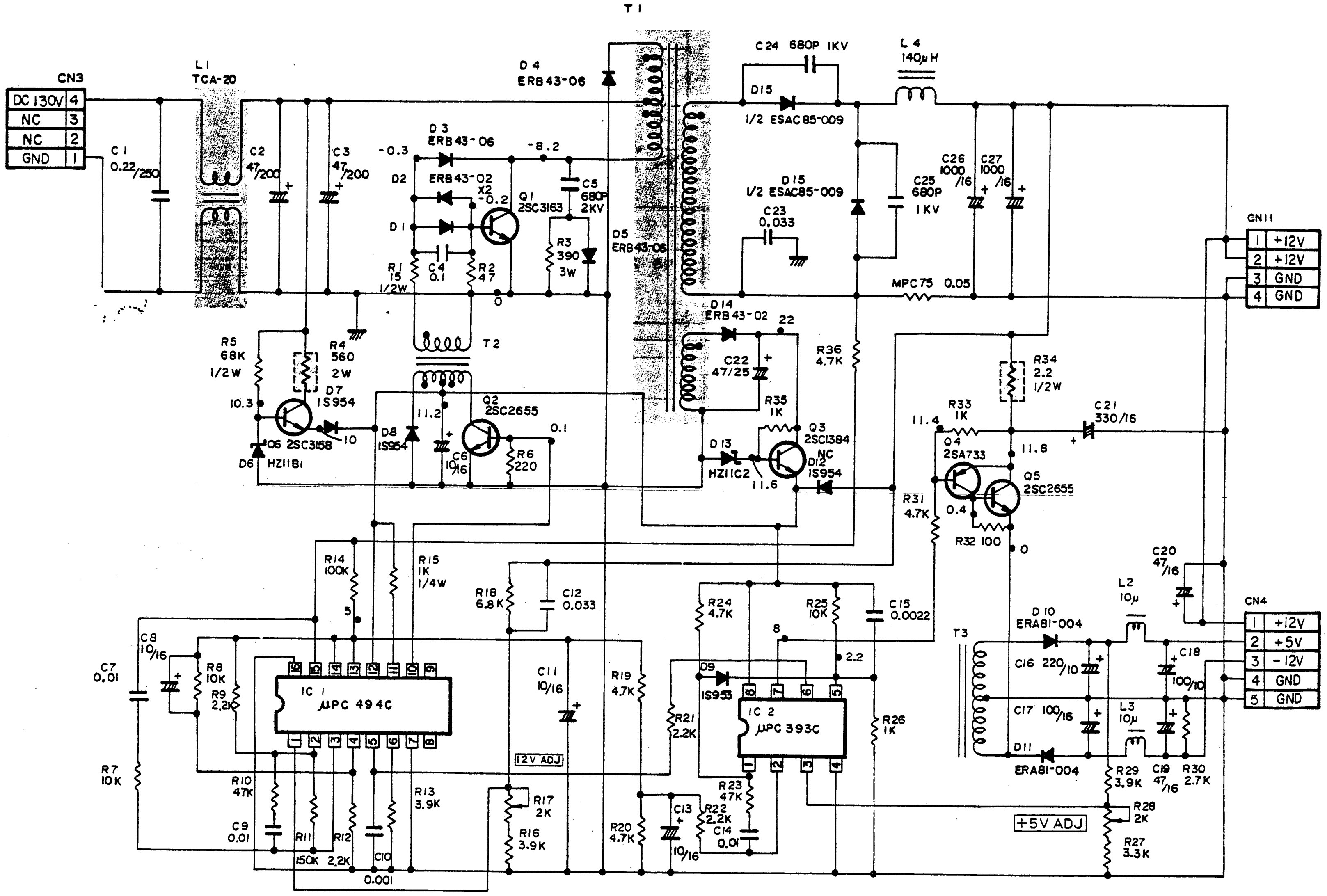
5.1 OVERALL WIRING


CN 14
CN BOARD
CAMERA RS CONNECTOR
CN 6
AS
CHASSIS
AW. AB. BAR
B-H
TALLY
IRIS A/M
R-H
IRIS
CC
R-GAIN
B-GAIN
RM
HI-SENS
LEVEL
B-V
R-V
R-BL
B-BL
M-BL
20
C403 0.1
C401 0.1
C404 0.1
CN 11
+12V
+12V
GND
GND
CN 12
H-PHASE
GEN
AUX
GND
L
J
K
T
R401 150
R402 150
R403 1.5K
Q401 2SA1022
Q402 2SC2295
R404 2.7K
R406 1.2K
C402 4.7/16
R460 2.7K
R405 18K
R408 100K
D401 MA152A
R407 3.9K
R409 33K
Q403 2SC2295
CN 13
GND
VBS
B
G
R
MIC-H
MIC-C
a
b
c
d
e
f
g
AD BOARD
CN 5
COM
COM
H
+12V
CN 4
+12V
+5V
-12V
GND
CN 3
+140V
0V
SW BOARD
+12V
+12V
GND
GND
CN 10
C203 47/25
C202 0.1
C201 0.1
L201 90μH
L202 1.3mH
CN 8
VBS
GND
B
G
GND
R
C
D
E
F
S
G
R201 75
R210 150
R203 47
R205 47
R207 47
SCV0514
T201
R209 4.7K
CN 9
AUDIO-H
AUDIO-C
R
V
FT BOARD
J1
CAMERA CABLE
1 VBS
2 GND
3 B
4 G
5 GND
6 R
COM
P
U
N
CN 7
D301 MA26W
R306 100
R301 22
C302 22/16
Q301 2SA684
R302 3.3K
C301 10/25
J2
INTERCOM
G
E
M
R305 10K
R304 2K
IT BOARD

OVERALL WIRING (EXPLODED VIEWS) 5-1

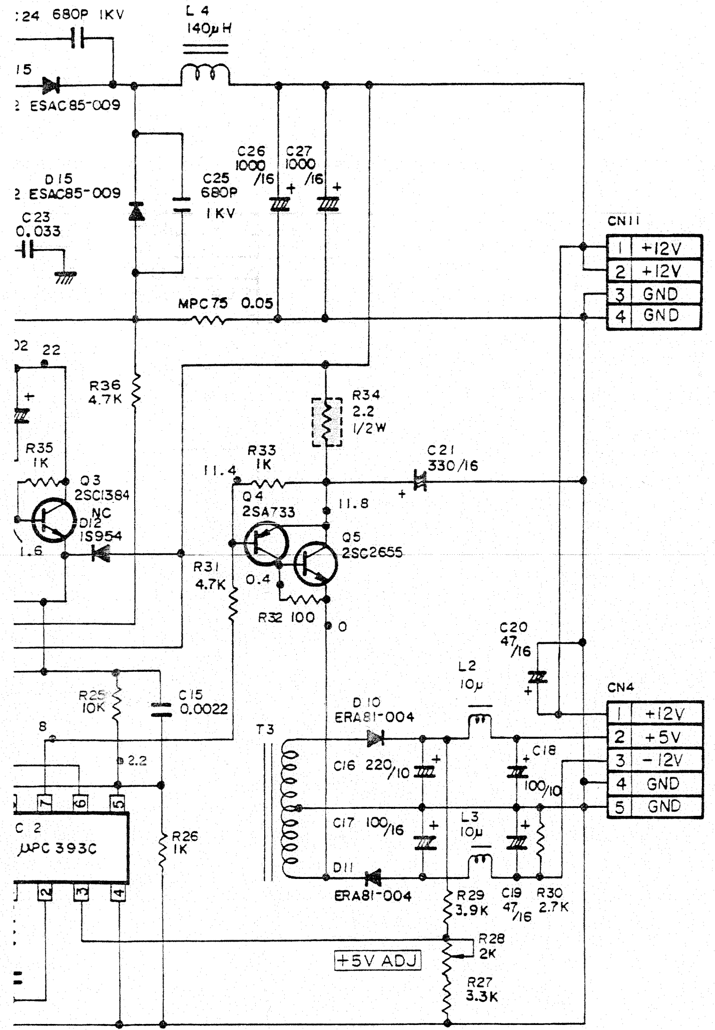
5-1 OVERALL WIRING (EXPLODED VIEWS)

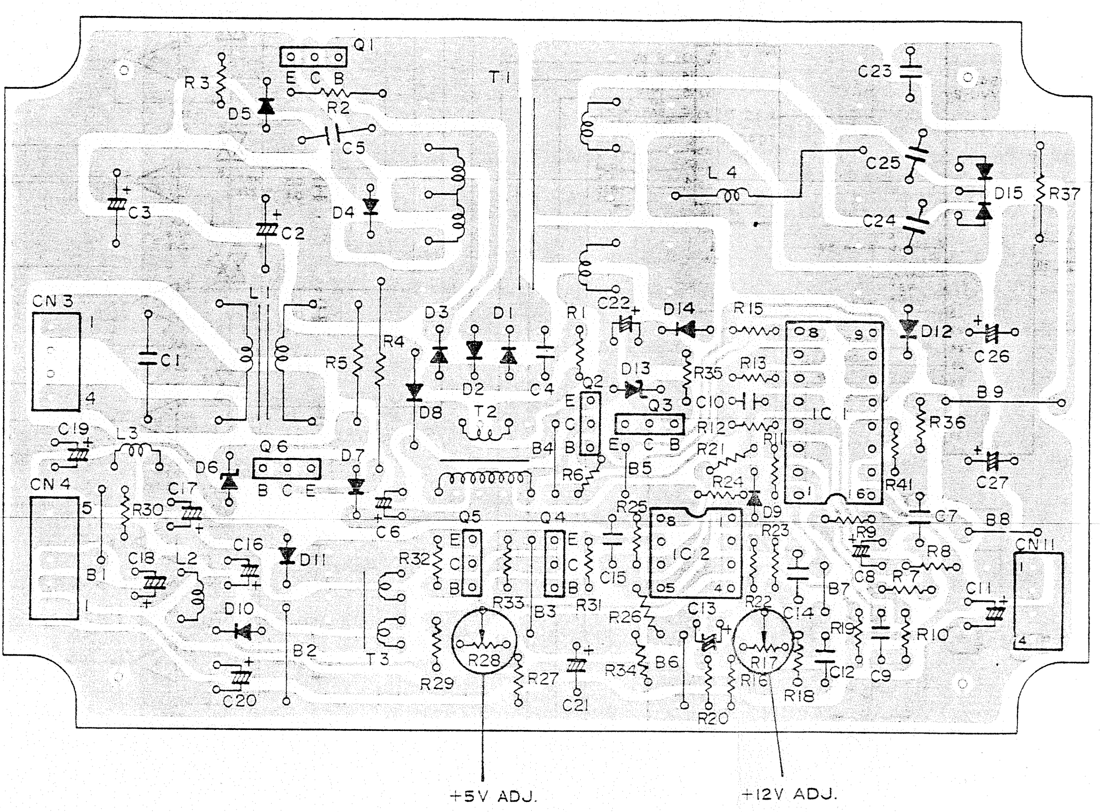
5.2 SW BOARD SCHEMATIC DIAGRAM


T1
CN3
DC 130V 4
NC 3
NC 2
GND 1
C1 0.22/250
L1 TCA-20
C2 47/200
C3 47/200
D4 ERB43-06
D3 ERB43-06
-0.3
-8.2
D2 ERB43-02
X2 -0.2
D1
Q1 2SC3163
C5 680P 2KV
R3 390 3W
D5 ERB43-06
R1 15 1/2W
C4 0.1
R2 47
0
C24 680P 1KV
L4 140μH
D15 1/2 ESAC85-009
D15 1/2 ESAC85-009
C23 0.033
C25 680P 1KV
C26 1000/16
C27 1000/16
MPC75 0.05
CN11
1 +12V
2 +12V
3 GND
4 GND
R5 68K 1/2W
R4 560 2W
D7 1S954
T2
10.3
Q6 2SC3158
10
D6 HZ11B1
D8 1S954
11.2
C6 10/16
Q2 2SC2655
R6 220
0.1
D14 ERB43-02
22
C22 47/25
R36 4.7K
R35 1K
Q3 2SC1384
NC
D13 HZ11C2
D12 1S954
11.6
R34 2.2 1/2W
C21 330/16
R33 1K
11.4
Q4 2SA733
11.8
Q5 2SC2655
R31 4.7K
0.4
R32 100
0
R14 100K
R15 1K 1/4W
R18 6.8K
C12 0.033
C20 47/16
L2 10μ
CN4
1 +12V
2 +5V
3 -12V
4 GND
5 GND
5
C8 10/16
C7 0.01
R8 10K
R9 2.2K
IC 1 μPC 494C
C11 10/16
12V ADJ
R19 4.7K
R24 4.7K
R25 10K
C15 0.0022
8
2.2
D9 1S953
R21 2.2K
IC 2 μPC 393C
R26 1K
T3
D10 ERA81-004
C16 220/10
C18 100/10
C17 100/16
L3 10μ
D11 ERA81-004
R29 3.9K
C19 47/16
R30 2.7K
R28 2K
+5V ADJ
R27 3.3K
R7 10K
R10 47K
C9 0.01
R11 150K
R12 2.2K
C10 0.001
R13 3.9K
R17 2K
R16 3.9K
R20 4.7K
C13 10/16
R23 47K
R22 2.2K
C14 0.01

NOTE: Replacing shaded ( ) parts, be sure to use parts specfifed for safety purposes.

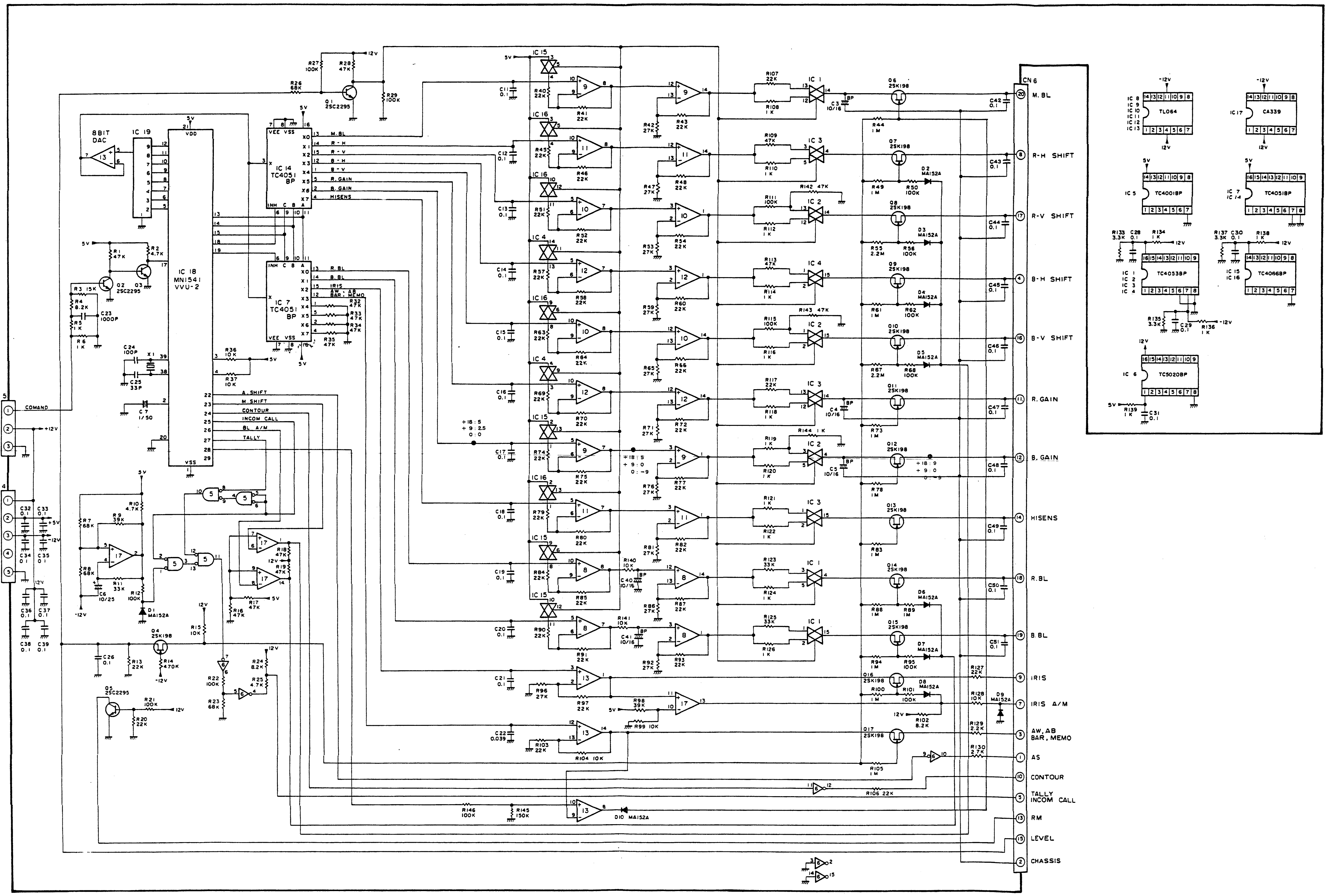
5.3 SW CIRCUIT BOARD


C24 680P 1KV
L4 140μH
D15 ESAC85-009
C25 680P 1KV
C26 1000/16
C27 1000/16
C23 0.033
MPC75 0.05
CN11
1 +12V
2 +12V
3 GND
4 GND
R36 4.7K
R35 1K
Q3 2SC1384
D12 1S954
R34 2.2 1/2W
R33 1K
C21 330/16
Q4 2SA733
Q5 2SC2655
R31 4.7K
R32 100
C20 47/16
L2 10μ
D10 ERA81-004
CN4
1 +12V
2 +5V
3 -12V
4 GND
5 GND
R25 10K
C15 0.0022
T3
C16 220/10
C18 100/10
C17 100/16
L3 10μ
D11 ERA81-004
IC2 μPC393C
R26 1K
R29 3.9K
C19 47/16
R30 2.7K
R28 2K
+5V ADJ
R27 3.3K

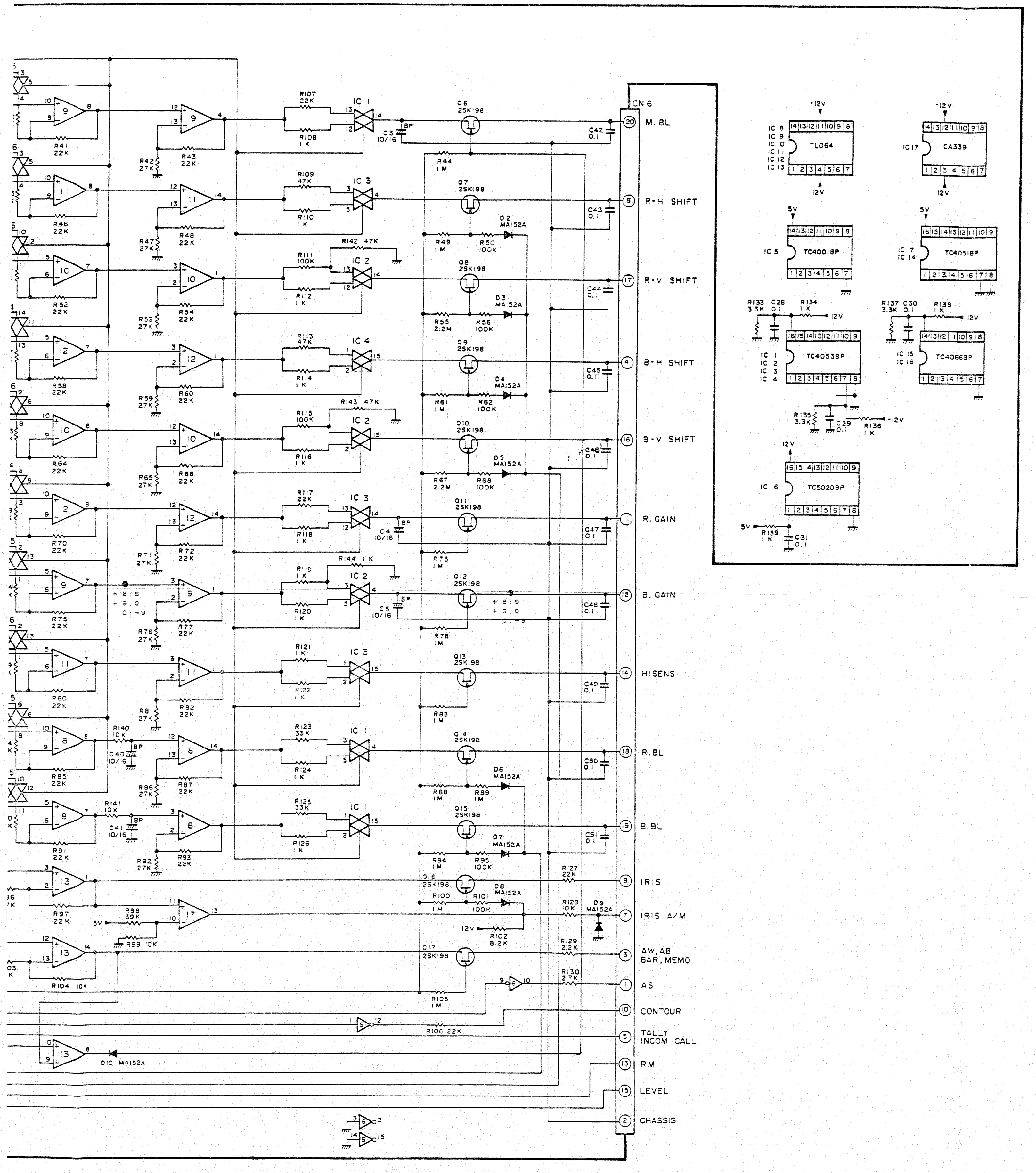

Q1
E C B
R3
D5
R2
C5
T1
C23
C25
L4
D15
R37
C24
C3
C2
D4
CN3
C1
L1
R5
R4
D3
D1
D2
C4
R1
C22
D14
R15
D12
C26
D8
T2
R13
R35
D13
Q2
Q3
C10
IC1
B9
R36
C19
L3
D6
Q6
B C E
D7
C6
B4
R6
B5
R12
R21
R24
D9
R11
C27
CN4
R30
C17
Q5
Q4
R25
R41
C7
B8
C16
D11
C18
L2
R32
C15
IC2
R23
R9
R8
CN11
B1
D10
R33
B3
R31
R26
C13
R22
C14
B7
R7
C8
C11
R19
R10
B2
T3
R28
R27
R34
B6
R17
C12
C9
C20
R29
C21
R16
R18
R20
+5V ADJ.
+12V ADJ.

5.4 – NEW TYPE – AD BOARD SCHEMATIC DIAGRAM

NOTE: Serial No's 13850231 and after


A
B
C
D
E
1
2
3
4
5
6
CN 5
COMAND
+12V
CN 4
+5V
-12V
8BIT DAC
IC 19
IC 18 MN1541 VVU-2
IC 14 TC4051 BP
IC 7 TC4051 BP
Q1 2SC2295
Q2 2SC2295
Q3
Q4 2SK198
Q5 2SC2295
D1 MA152A
X1
A. SHIFT
M. SHIFT
CONTOUR
INCOM CALL
BL A/M
TALLY
M. BL
R-H
R-V
B-H
B-V
R. GAIN
B. GAIN
HISENS
R. BL
B. BL
IRIS
AW, AB BAR, MEMO
IC 15
IC 16
IC 4
IC 1
IC 2
IC 3
Q6 2SK198
Q7 2SK198
Q8 2SK198
Q9 2SK198
Q10 2SK198
Q11 2SK198
Q12 2SK198
Q13 2SK198
Q14 2SK198
Q15 2SK198
Q16 2SK198
Q17 2SK198
D2 MA152A
D3 MA152A
D4 MA152A
D5 MA152A
D6 MA152A
D7 MA152A
D8 MA152A
D9 MA152A
D10 MA152A
+18 : 5
+ 9 : 2.5
0 : 0
+18 : 5
+ 9 : 0
0 : -9
+18 : 9
+ 9 : 0
CN 6
M. BL
R-H SHIFT
R-V SHIFT
B-H SHIFT
B-V SHIFT
R. GAIN
B. GAIN
HISENS
R. BL
B. BL
IRIS
IRIS A/M
AW, AB BAR, MEMO
AS
CONTOUR
TALLY INCOM CALL
RM
LEVEL
CHASSIS
IC 8 IC 9 IC 10 IC 11 IC 12 IC 13 TL064
IC 17 CA339
IC 5 TC4001BP
IC 7 IC 14 TC4051BP
IC 1 IC 2 IC 3 IC 4 TC4053BP
IC 15 IC 16 TC4066BP
IC 6 TC5020BP
-12V
12V
5V

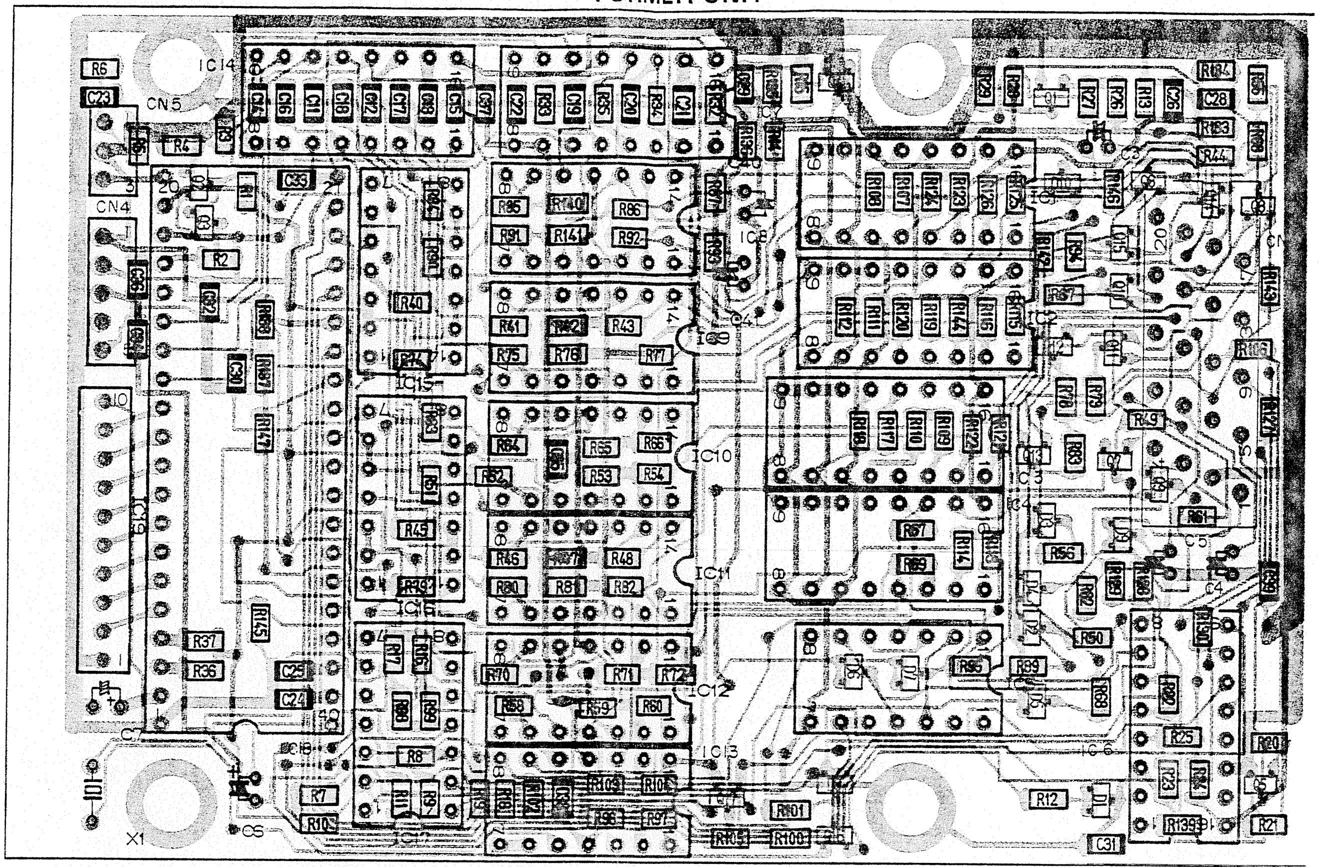
and after


CN 6
M. BL
R-H SHIFT
R-V SHIFT
B-H SHIFT
B-V SHIFT
R. GAIN
B. GAIN
HISENS
R.BL
B.BL
IRIS
IRIS A/M
AW, AB BAR, MEMO
AS
CONTOUR
TALLY INCOM CALL
RM
LEVEL
CHASSIS
TL064
CA339
TC40018P
TC40518P
TC40538P
TC40668P
TC50208P
-12V
12V
5V

5.5 AD CIRCUIT BOARD

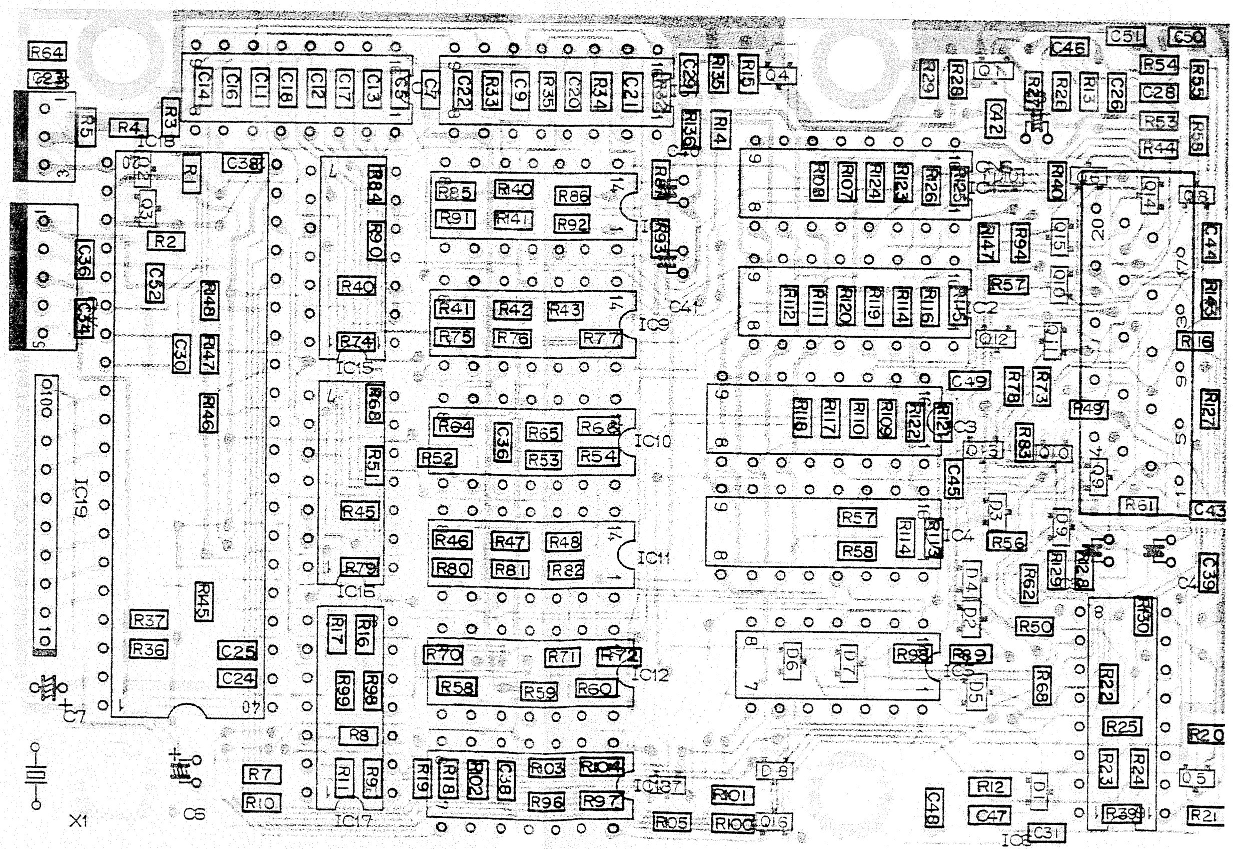
NOTE: Serial No's 0615XXXX and before

– FORMER UNIT –



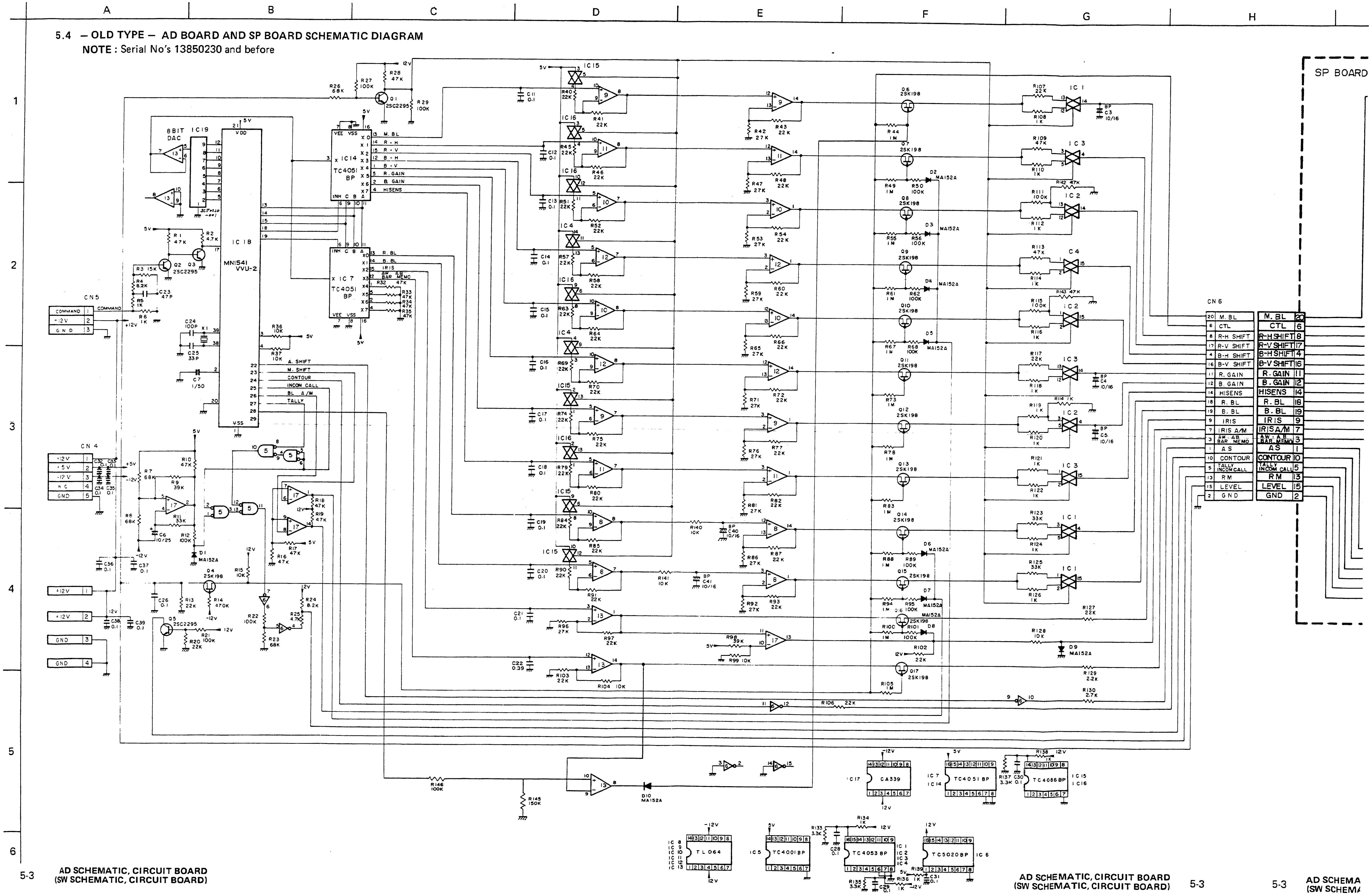
NOTE: Serial No's 0715XXXX and after

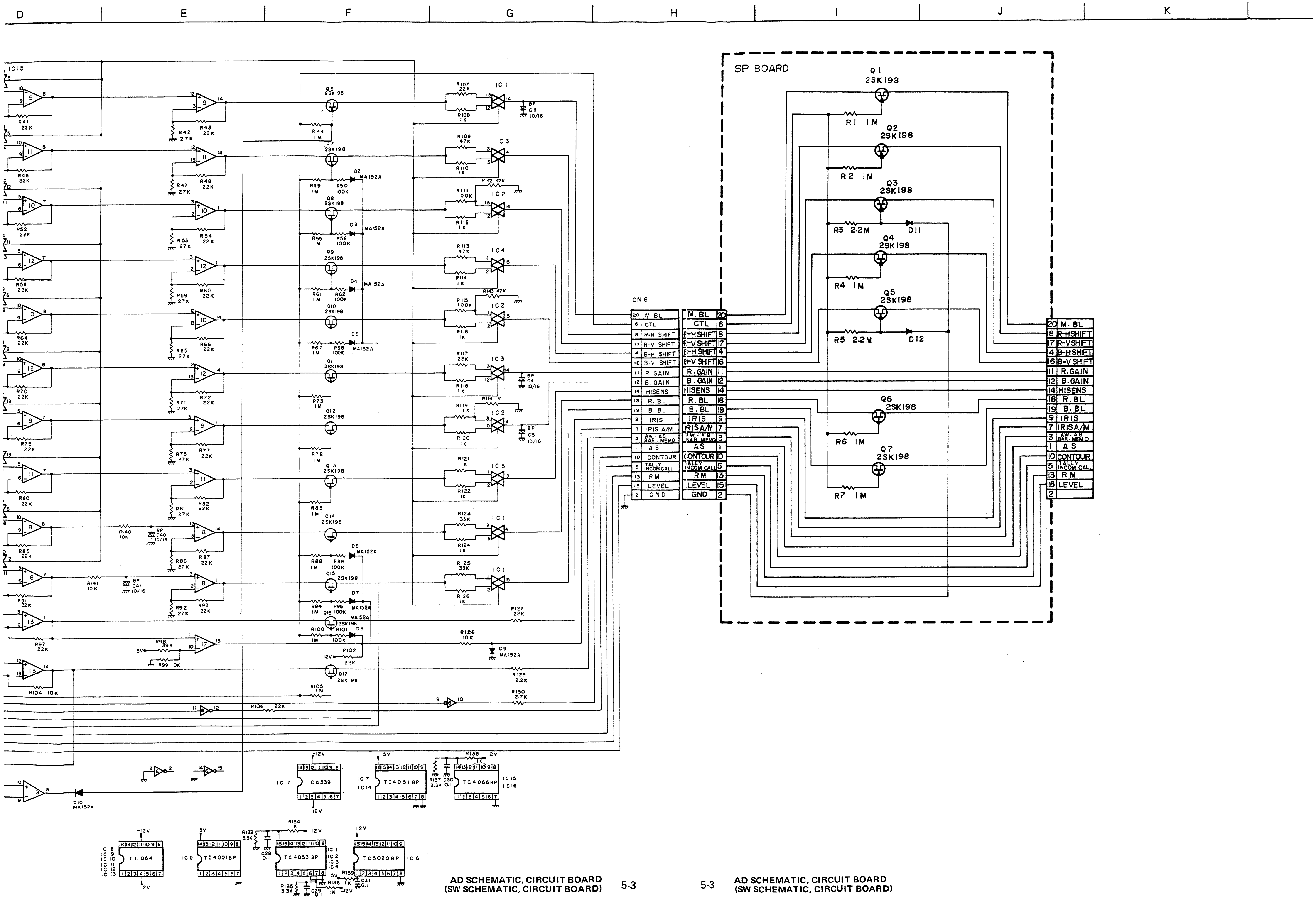
– LATER UNIT –



5.4 — OLD TYPE — AD BOARD AND SP BOARD SCHEMATIC DIAGRAM

NOTE : Serial No's 13850230 and before


A
B
C
D
E
F
G
H
1
2
3
4
5
6
SP BOARD
8BIT DAC
IC19
IC18
MN1541 VVU-2
IC14 TC4051 BP
IC7 TC4051 BP
IC15
IC16
IC4
IC1
IC2
IC3
C4
CN5
COMMAND
-12V
GND
CN4
+12V
+5V
-12V
NC
GND
CN6
M. BL
CTL
R-H SHIFT
R-V SHIFT
B-H SHIFT
B-V SHIFT
R. GAIN
B. GAIN
HISENS
R. BL
B. BL
IRIS
IRIS A/M
AW. AB BAR MEMO
AS
CONTOUR
TALLY INCOM CALL
RM
LEVEL
GND
A. SHIFT
M. SHIFT
CONTOUR
INCOM CALL
BL A/M
TALLY
Q1 2SC2295
Q2 2SC2295
Q3
Q4 2SK198
Q5 2SC2295
Q6 2SK198
Q7 2SK198
Q8 2SK198
Q9 2SK198
Q10 2SK198
Q11 2SK198
Q12 2SK198
Q13 2SK198
Q14 2SK198
Q15 2SK198
Q16 2SK198
Q17 2SK198
D1 MA152A
D2 MA152A
D3 MA152A
D4 MA152A
D5 MA152A
D6 MA152A
D7 MA152A
D8
D9 MA152A
D10 MA152A
X1
IC17 CA339
IC7 IC14 TC4051BP
IC15 IC16 TC4066BP
IC8 IC9 IC10 IC11 IC12 IC13 TL064
IC5 TC4001BP
IC1 IC2 IC3 IC4 TC4053BP
TC5020BP IC6
R137 3.3K
C30 0.1
R138 1K
R133 3.3K
R134 1K
C28 0.1
R135 3.3K
C29 0.1
R136 1K
R139 1K
C31 0.1
R146 100K
R145 150K
R106 22K
R140 10K
R141 10K
C40 10/16
C41 10/16


D
E
F
G
H
I
J
K
SP BOARD
Q1 2SK198
Q2 2SK198
Q3 2SK198
Q4 2SK198
Q5 2SK198
Q6 2SK198
Q7 2SK198
R1 1M
R2 1M
R3 2.2M
R4 1M
R5 2.2M
R6 1M
R7 1M
D11
D12
CN6
20 M. BL
6 CTL
8 R-H SHIFT
17 R-V SHIFT
4 B-H SHIFT
16 B-V SHIFT
11 R. GAIN
12 B. GAIN
14 HISENS
18 R. BL
19 B. BL
9 IRIS
7 IRIS A/M
3 AW. AB BAR. MEMO
1 AS
10 CONTOUR
5 TALLY INCOM CALL
13 RM
15 LEVEL
2 GND
IC15
Q6 2SK198
Q7 2SK198
Q8 2SK198
Q9 2SK198
Q10 2SK198
Q11 2SK198
Q12 2SK198
Q13 2SK198
Q14 2SK198
Q15 2SK198
Q16 2SK198
Q17 2SK198
D2 MA152A
D3 MA152A
D4 MA152A
D5 MA152A
D6 MA152A
D7 MA152A
D8 MA152A
D9 MA152A
D10 MA152A
R107 22K
R108 1K
R109 47K
R110 1K
R111 100K
R112 1K
R113 47K
R114 1K
R115 100K
R116 1K
R117 22K
R118 1K
R119 1K
R120 1K
R121 1K
R122 1K
R123 33K
R124 1K
R125 33K
R126 1K
R127 22K
R128 10K
R129 2.2K
R130 2.7K
R142 47K
R143 47K
R140 10K
R141 10K
C3 BP 10/16
C4 BP 10/16
C5 BP 10/16
C40 BP 10/16
C41 BP 10/16
R41 22K
R42 27K
R43 22K
R44 1M
R46 22K
R47 27K
R48 22K
R49 1M
R50 100K
R52 22K
R53 27K
R54 22K
R55 1M
R56 100K
R58 22K
R59 27K
R60 22K
R61 1M
R62 100K
R64 22K
R65 27K
R66 22K
R67 1M
R68 100K
R70 22K
R71 27K
R72 22K
R73 1M
R75 22K
R76 27K
R77 22K
R78 1M
R80 22K
R81 27K
R82 22K
R83 1M
R85 22K
R86 27K
R87 22K
R88 1M
R89 100K
R91 22K
R92 27K
R93 22K
R94 1M
R95 100K
R97 22K
R98 39K
R99 10K
R100 1M
R101 100K
R102 22K
R104 10K
R105 1M
R106 22K
5V
12V
IC1
IC2
IC3
IC4
IC17 CA339
IC7 IC14 TC4051BP
R137 3.3K
C30 0.1
R138 1K
IC15 IC16 TC4066BP
IC8 IC9 IC10 IC11 IC12 IC13 TL064
IC5 TC4001BP
R133 3.3K
C28 0.1
R134 1K
IC1 IC2 IC3 IC4 TC4053BP
R135 3.3K
C29 0.1
R136 1K
R139 1K
C31 0.1
TC5020BP IC6
-12V

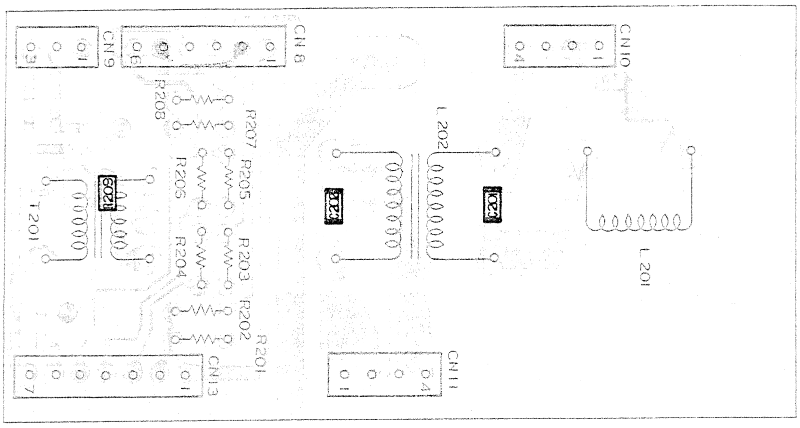
AD SCHEMATIC, CIRCUIT BOARD
(SW SCHEMATIC, CIRCUIT BOARD)

AD SCHEMATIC, CIRCUIT BOARD
(SW SCHEMATIC, CIRCUIT BOARD)

5.6 FT CIRCUIT BOARD

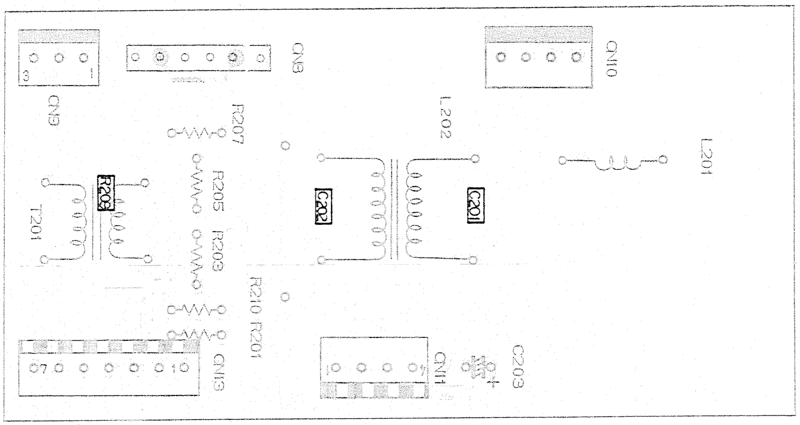
NOTE: Serial No's 0615XXXX and before

– FORMER UNIT –


CN9
CN8
CN10
R208
R207
R205
R206
R203
R204
R202
R201
T201
R209
C202
L202
C201
L201
CN13
CN11

NOTE: Serial No's 0715XXXX and before

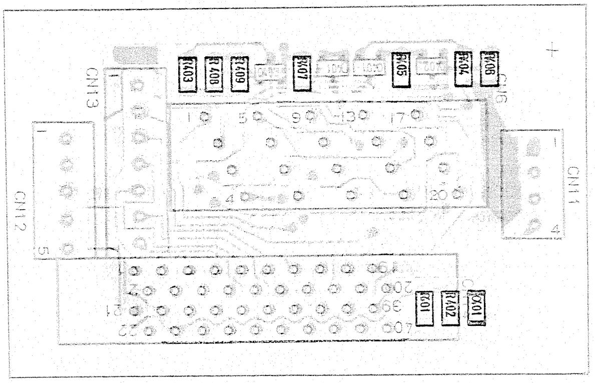
– LATER UNIT –


CN9
CN8
CN10
R207
L202
L201
T201
R209
R205
R208
C202
C201
R210
R201
CN13
CN11
C203

5.7 CN CIRCUIT BOARD

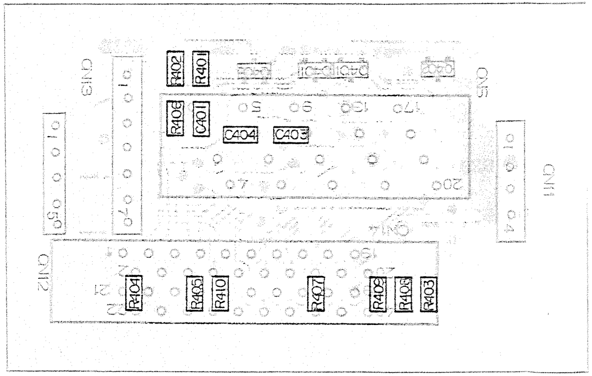
NOTE: Serial No's 0615XXXX and before

– FORMER UNIT –


CN13
R403
R406
R409
R407
R405
R404
R408
CN6
CN12
CN11
Q101
R102
R101

NOTE: Serial No's 0715XXXX and before

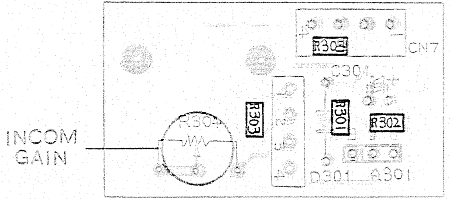
– LATER UNIT –


CN13
R402
R401
CN5
R406
C401
C404
C403
CN11
CN12
CN14
R404
R405
R410
R407
R409
R408
R403

5.8 IT CIRCUIT BOARD

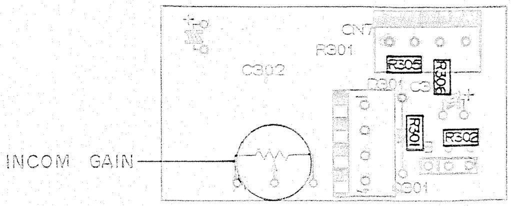
NOTE: Serial No's 0615XXXX and before

– FORMER UNIT –


R305
CN7
C301
R304
R303
R301
R302
INCOM
GAIN
D301
Q301

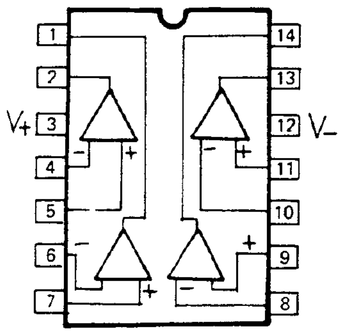
NOTE: Serial No's 0715XXXX and before

– LATER UNIT –

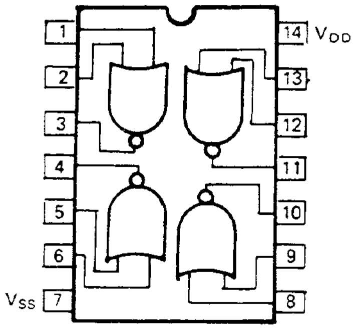

CN7
R301
C302
R305
R306
D301
C3
R301
R302
INCOM GAIN
Q301

5.9 ICs

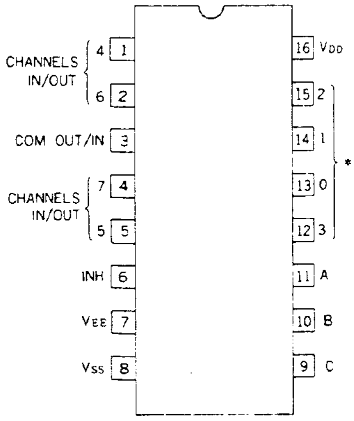
CA339G (DUAL OP.AMPS) [RCA]
CA339E [RCA]


1
2
V+ 3
4
5
6
7
14
13
12 V-
11
10
9
8
-
+
-
+
-
+
-
+

TC4001BP (QUAD A-INPUT POSITIVE NOR GATE) [TOSHIBA]
CD4001BE [RCA]

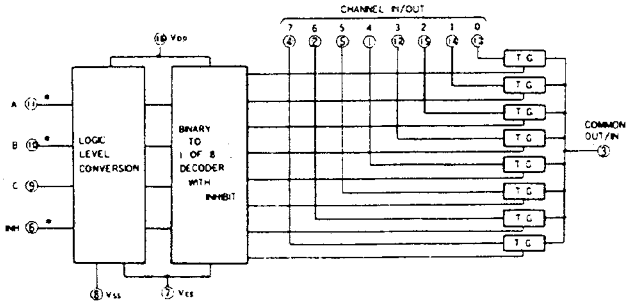

1
2
3
4
5
6
VSS 7
14 VDD
13
12
11
10
9
8

TC4051BP (MULTIPLEXER/DEMULTIPLEXER) [TOSHIBA]
CD4051BE [RCA]


CHANNELS IN/OUT
4 1
6 2
COM OUT/IN 3
CHANNELS IN/OUT
7 4
5 5
INH 6
VEE 7
VSS 8
16 VDD
15 2
14 1
13 0
12 3
11 A
10 B
9 C
*

*CHANNELS IN/OUT TOP VIEW

Block Diagram

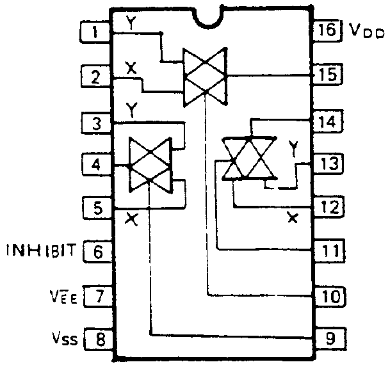

CHANNEL IN/OUT
7 6 5 4 3 2 1 0
④ ② ⑤ ① ⑫ ⑮ ⑭ ⑬
⑯ VDD
A ⑪ *
B ⑩ *
C ⑨
INH ⑥ *
LOGIC LEVEL CONVERSION
BINARY TO 1 OF 8 DECODER WITH INHIBIT
T G
COMMON OUT/IN ③
⑧ VSS
⑦ VEE

TRUTH TABLE

INPUT STATES				"ON" CHANNEL(S)
INHIBIT	C	B	A	
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	X	X	X	NONE

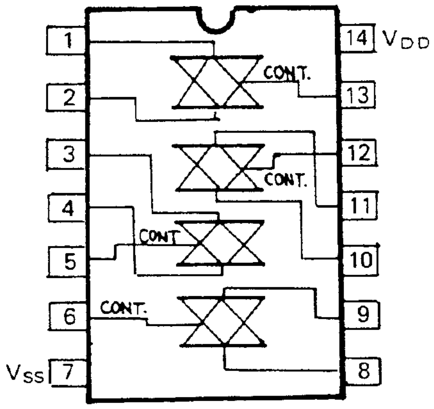
X = Don't care

TC4053BP (TRIPPLE 2-CHANNEL MULTIPLEXER/ DEMULTIPLEXER) [TOSHIBA]
CD4053BE [RCA]

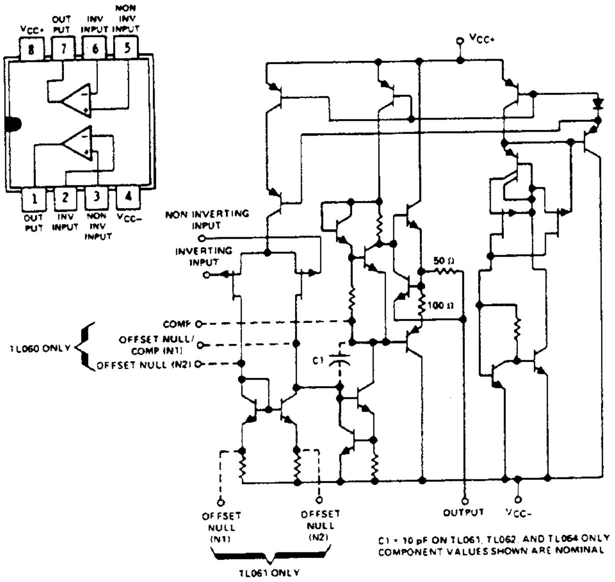

1
2
3
4
5
INHIBIT 6
VEE 7
VSS 8
16 VDD
15
14
13
12
11
10
9
Y
X
Y
X
Y
X

CONTROL H : Y OUTPUT

TC4066BP (QUAL BILATERAL SWITCH) [TOSHIBA]
CD4066BE [RCA]

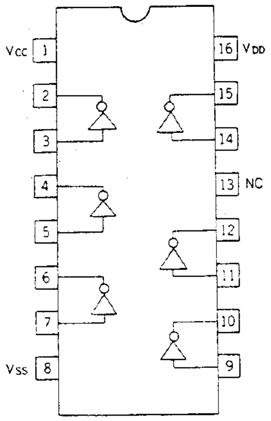

1
2
3
4
5
6
VSS 7
14 VDD
13
12
11
10
9
8
CONT.
CONT.
CONT.
CONT.

TL064 (DUAL COMPARATOR) [TEXAS]


VCC+
OUT PUT
INV INPUT
NON INV INPUT
8
7
6
5
1
2
3
4
OUT PUT
INV INPUT
NON INV INPUT
VCC−
VCC+
NON INVERTING INPUT
INVERTING INPUT
50 Ω
100 Ω
COMP
OFFSET NULL/ COMP (N1)
OFFSET NULL (N2)
TL060 ONLY
C1
OFFSET NULL (N1)
OFFSET NULL (N2)
TL061 ONLY
OUTPUT
VCC−

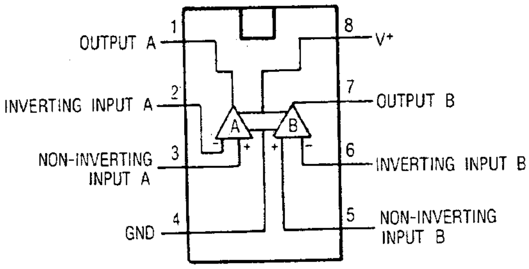
C1 = 10 pF ON TL061, TL062, AND TL064 ONLY
COMPONENT VALUES SHOWN ARE NOMINAL

TC5020BP [TOSHIBA]
CD5020BE [RCA]


Vcc
1
2
3
4
5
6
7
Vss
8
16
VDD
15
14
13
NC
12
11
10
9

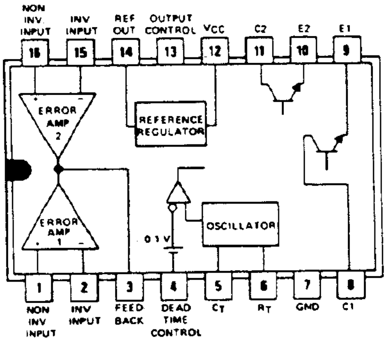
TOP VIEW

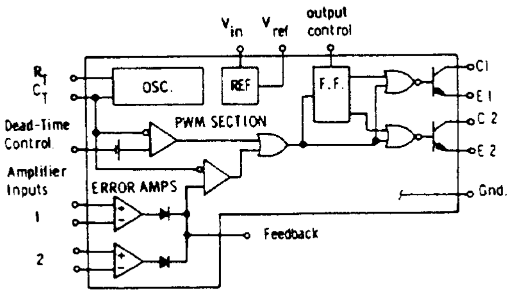
µPC393C (HEX L AND H VOLTAGE TRANSLATOR) [NEC]


OUTPUT A
1
INVERTING INPUT A
2
NON-INVERTING INPUT A
3
GND
4
8
V+
7
OUTPUT B
6
INVERTING INPUT B
5
NON-INVERTING INPUT B
A
B

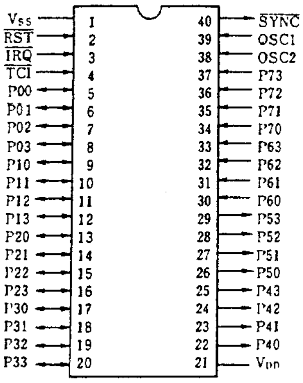
TOP VIEW

µPC494C [NEC]
TL494CN [TEXAS]

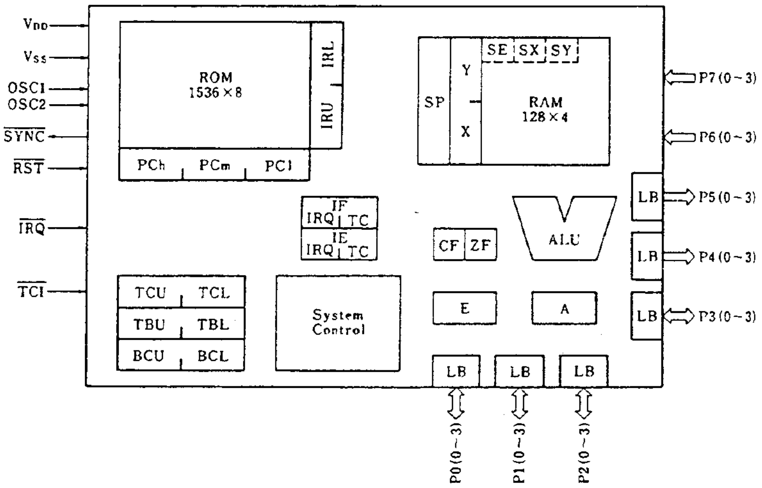

NON INV INPUT
INV INPUT
REF OUT
OUTPUT CONTROL
VCC
C2
E2
E1
16
15
14
13
12
11
10
9
ERROR AMP 2
REFERENCE REGULATOR
ERROR AMP 1
0.1 V
OSCILLATOR
1
2
3
4
5
6
7
8
NON INV INPUT
INV INPUT
FEED BACK
DEAD TIME CONTROL
CT
RT
GND
C1


Vin
Vref
output control
RT
CT
OSC.
REF
F.F.
C1
E1
C2
E2
Dead-Time Control
PWM SECTION
Amplifier Inputs
ERROR AMPS
Gnd.
1
Feedback
2

MN1541VVU-2 (MATSUSHITA)


Vss 1
RST 2
IRQ 3
TCI 4
P00 5
P01 6
P02 7
P03 8
P10 9
P11 10
P12 11
P13 12
P20 13
P21 14
P22 15
P23 16
P30 17
P31 18
P32 19
P33 20
40 SYNC
39 OSC1
38 OSC2
37 P73
36 P72
35 P71
34 P70
33 P63
32 P62
31 P61
30 P60
29 P53
28 P52
27 P51
26 P50
25 P43
24 P42
23 P41
22 P40
21 VDD

V_{DD}	Power (+5 V)
V_{SS}	Ground
OSC1, OSC2	Clock (OSC1 : Ext clock input)
$\overline{SYNC}$	Sync output internal
$\overline{RST}$	Reset
$\overline{IRQ}$	Iregular program control input
P00 ~ P33(MN1541)	Parallel input/output
P40 ~ P53(MN1541)	Parallel output
P60 ~ P73(MN1541)	Parallel input


VDD
VSS
OSC1
OSC2
SYNC
RST
IRQ
TCI
ROM
1536 × 8
IRL
IRU
PCh
PCm
PCl
IF
IRQ TC
IE
IRQ TC
TCU TCL
TBU TBL
BCU BCL
System Control
SP
Y
X
SE SX SY
RAM
128 × 4
CF ZF
ALU
E
A
LB
P7(0~3)
P6(0~3)
P5(0~3)
P4(0~3)
P3(0~3)
P0(0~3)
P1(0~3)
P2(0~3)

SECTION 6
ELECTRICAL PARTS LIST

Page

6.1 STANDARD PART NUMBER CODING . . . . 6 - 2

6.1.1 Chip Resistor Coding . . . . 6 - 2

6.1.2 Chip Capacitor Coding . . . . 6 - 2

6.2 CAMERA ADAPTOR . . . . 6 - 3

6.2.1 AD Board Ass'y . . . . 6 - 3

6.2.2 SW Board Ass'y . . . . 6 - 4

6.2.3 FT Board Ass'y . . . . 6 - 5

6.2.4 CN Board Ass'y . . . . 6 - 5

6.2.5 IT Board Ass'y . . . . 6 - 5

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers. For maximum reliability and performance, all other replacement parts should be identical to those specified.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

RESISTORS – All resistance values are in ohms (Ω).

K : 1 000
M : 1 000 000
CR : Carbon Resistor
Comp. R : Composition Resistor
WR : Wire Wound Resistor
OMR : Oxide Metal Film Resistor
VR : Variable Resistor (Potentiometer)
MFR : Metal Film Resistor
FR : Fusible Resistor

CAPACITORS – All capacitance values are in μF, unless otherwise indicated.

P : μμF
C Cap : Ceramic Capacitor
E Cap : Electrolytic Capacitor
FM Cap : Film Mica Capacitor
MM Cap : Metalized Mylar Capacitor
MP Cap : Metalized Paper Capacitor
MY Cap : Mylar Capacitor
NP Cap : Non-polar Capacitor
PC Cap : Polycarbonate Capacitor
PP Cap : Poly Pro Capacitor
PS Cap : Polystyrol Capacitor
T Cap : Tantalum Capacitor
TR Cap : Trimmer Capacitor

6.1 STANDARD PART NUMBER CODING

6.1.1 Chip Resistors (Metal Glaze Resistor)

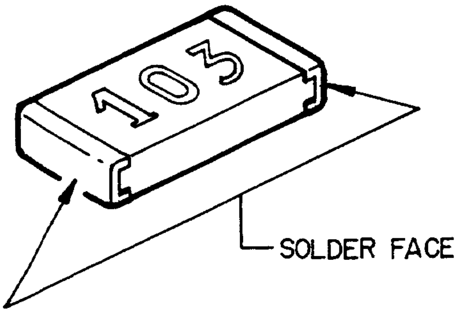


Fig. 8-1

- Resistance values are indicated in code on the side opposite to that facing the PC board. Since resistance values are not indicated in the parts list, use this coding table to identify them.
- Parts are supplied in packs of 5 units.
- Alternative method of replacement is to substitute chip resistors with ordinary carbon resistors type QRD167J.
- Rated wattage is 1/8 W.

6.1.2 Chip Capacitors (Ceramic Capacitor)

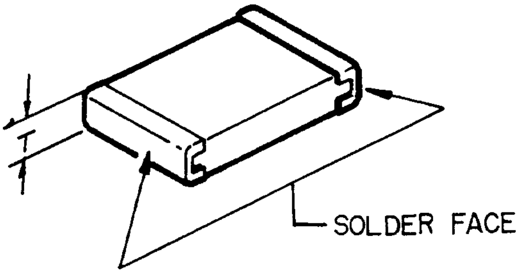


Fig. 8-2

- Capacitance values are not indicated on parts. Refer to schematic diagrams or parts list for capacitance.
- Parts are supplied in packs of 5 units.
- Rated voltage is 50 V.

T : Varies depending on capacitance values.

QRS188☐J☐-☐☐☐

1/8 W Chip Resistor Code Tolerance Resistance Value

Symbol	Tolerance	
J	± 5 %	⇨ Standard
K	± 10 %	
M	± 20 %	

Examples:	
R47	0.47 Ω
4R7	4.7 Ω
470	47 Ω
471	470 Ω
472	4.7 kΩ
473	47 kΩ
474	470 kΩ
475	4.7 MΩ

6.2 CAMERA ADAPTOR

6.2.1 AD Board Ass'y

Symbol No.	Part No.	Part Name	Description
IC 1	TC4053BP	Integrated Circuit	TOSHIBA
IC 2	"	"	"
IC 3	"	"	"
IC 4	"	"	"
IC 5	TC4001BP	"	"
IC 6	TC5020BP	"	"
IC 7	TC4051BP	"	"
IC 8	TL064CN	"	TEXAS
IC 9	"	"	"
IC10	"	"	"
IC11	"	"	"
IC12	"	"	"
IC13	"	"	"
IC14	TC4051BP	"	TOSHIBA
IC15	TC4066BP	"	"
IC16	"	"	"
IC17	CA339G	"	RCA
IC18	MN1541VVU-2	"	MATSUSHITA
IC19	SCV0520-001	"	JVC
Q 1	2SC2295(B)	Si. Transistor	
Q 2	"	"	
Q 3	"	"	
Q 4	2SK198(Q)	FET	
Q 5	2SC2295(B)	Si. Transistor	
Q 6	2SK198(Q)	FET	
Q 7	"	"	
Q 8	"	"	
Q 9	"	"	
Q10	"	"	
Q11	"	"	
Q12	"	"	
Q13	"	"	
Q14	"	"	
Q15	"	"	
Q16	"	"	
Q17	"	"	
D 1	MA152A	Si. Diode	
D 2	"	"	
D 3	"	"	
D 4	"	"	
D 5	"	"	
D 6	"	"	
D 7	"	"	
D 8	"	"	
D 9	"	"	
C 1	–	–	
C 2	–	–	
C 3	QEPA1CM-106	E Cap	10 16 V
C 4	" -106	"	10 "
C 5	" -106	"	10 "
C 6	QET41ER-106	E Cap	10 25 V
C 7	QET41HR-105	"	1 50 V
C 8	–	–	
C 9	–	–	
C10	–	–	
C11	QCF41HZ-104	C Cap	0.1 50 V
C12	" -104	"	0.1 "
C13	" -104	"	0.1 "
C14	" -104	"	0.1 "
C15	" -104	"	0.1 "
C16	" -104	"	0.1 "
C17	" -104	"	0.1 "
C18	" -104	"	0.1 "
C19	" -104	"	0.1 "
C20	" -104	"	0.1 "
C21	" -104	"	0.1 "
C22	QCY41HK-393	"	0.01 "
C23	QCS41HJ-102	"	10 p "
C24	" -101	"	100 p "
C25	" -330	"	33 p "
C26	QCF41HZ-104	"	0.1 "
C27	–	–	
C28	QCF41HZ-104	C Cap	0.1 50 V
C29	" -104	"	0.1 "
C30	" -104	"	0.1 "
C31	" -104	"	0.1 "
C32	" -104	"	0.1 "
C33	" -104	"	0.1 "
C34	" -104	"	0.1 "
C35	" -104	"	0.1 "
C36	" -104	"	0.1 "
C37	" -104	"	0.1 "
C38	" -104	"	0.1 "
C39	" -104	"	0.1 "
C40	QEM41CM-106	E Cap	10 16 V
C41	" -106	"	10 16 V
C42	QCF41HZ-104	C Cap	0.1 50 V
C43	" -104	"	0.1 "
C44	" -104	"	0.1 "
C45	" -104	"	0.1 "
C46	" -104	"	0.1 "
C47	" -104	"	0.1 "
C48	" -104	"	0.1 "
C49	" -104	"	0.1 "
C50	" -104	"	0.1 "
C51	" -104	"	0.1 "
X 1	SSV0050	Crystal	
CN 4	SS30644-005	Post Header	
CN 5	" -003	"	
	SCV0549-001	Socket	For IC18

6.2.2 SW Board Ass'y

Symbol No.	Part No.	Part Name	Description
IC 1	µPC494C	Integrated Circuit	TL494CN
IC 2	µPC393C	"	
Q 1	2SC3163	Si. Transistor	
Q 2	2SC2655Y	"	
Q 3	2SC1384R	"	
Q 4	2SA733Q	"	
Q 5	2SC2655Y	"	
D 1	ERB43-06	Si. Diode	
D 2	ERB43-06	"	
D 3	"	"	
D 4	"	"	
D 5	"	"	
D 6	–	–	
D 7	–	–	
D 8	–	–	
D 9	–	–	
D10	ERA81-004	Si. Diode	
D11	"	"	
D12	–	–	
D13	–	–	
D14	ERB43-06	Si. Diode	
D15	E9AC85-009	"	
R 1	QRD121J-150	CR	15 1/2 W J
R 2	QRD141J-470	"	47 1/4 W "
R 3	SCV0468-R3	UNF R	3
R 4	ERQ-1CJ561	FR	560 1 W
R 5	QRD121J-683	CR	68 k 1/2 W J
R 6	QRD161J-221	"	220 1/6 W "
R 7	" -103	"	10 k " "
R 8	" -103	"	10k " "
R 9	" -222	"	2.2 k " "
R10	" -473	"	47 k " "
R11	" -154	"	150 k " "
R12	" -222	"	2.2 k " "
R13	" -472	"	4.7 k " "
R14	" -104	"	100 k " "
R15	QRD141J-103	"	10 k 1/4 W "
R16	QRD161J-392	"	3.9 k 1/6 W "
R17	SCV0222-203	VR	20 k
R18	QRD161J-682	CR	6.8 k 1/6 W J
R19	" -472	"	4.7 k " "
R20	" -472	"	4.7 k " "
R21	" -222	"	2.2 k " "
R22	" -222	"	2.2 k " "
R23	" -473	"	47 k " "
R24	" -472	"	4.7 k " "
R25	" -103	"	10 k " "
R26	" -102	"	1 k " "
R27	" -332	"	3.3 k " "
R28	SCV0222-203	VR	20 k

Symbol No.	Part No.	Part Name	Description
R29	QRD161J-392	CR	3.9 k 1/6 W J
R30	" -272	"	2.7 k " "
R31	" -472	"	4.7 k " "
R32	" -101	"	100 " "
R33	" -103	"	10 k " "
R34	QRH121K-2R2	FR	2.2 1/2 W K
R35	QRD161J-102	CR	1 k 1/6 W J
R36	" -472	"	4.7 k " "
R37	QRM054K-R05	MFR	0.5 5 W K
C 1	QFH42EK-224	MY Cap	0.22 250 V
C 2	SCV0468-C2	E Cap	47 200 V
C 3	" -C3	"	47 "
C 4	QEN41HK-104	NP Cap	0.1 50 V
C 5	QCZ0104-681	C Cap	680 p 2 kV
C 6	QET41CR-106	E Cap	10 16 V
C 7	QEN41HK-103	NP Cap	0.01 50 V
C 8	QET41CR-106	E Cap	10 16 V
C 9	QEN41HK-103	NP Cap	0.01 50 V
C10	" -102	"	0.001 "
C11	QET41CR-106	E Cap	10 16 V
C12	QEN41HK-333	NP Cap	0.033 50 V
C13	QET41CR-106	E Cap	10 16 V
C14	QEN41HK-103	NP Cap	0.01 50 V
C15	" -222	"	0.0022 "
C16	QET41AR-227	E Cap	220 10 V
C17	QET41CR-107	"	100 16 V
C18	QET41AR-107	"	100 10 V
C19	QET41CR-476	"	47 16 V
C20	" -476	"	47 "
C21	" -337	"	330 "
C22	QET41ER-476	"	47 25 V
C23	QEN41HK-333	NP Cap	0.033 50 V
C24	SCV0468-C24	C Cap	680 p 1 kV
C25	–	–	
C26	QET41CR-108	E Cap	1000 16 V
C28	" -108	"	1000 "
T 1	SCV0468-4117	Transformer	
T 2	" -3032	"	
T 3	" -4118A	"	
L 1	SCV0468-TCA20	Line Filter	
L 2	PU48530-100	Inductor	10 µ
L 3	" -100	"	10 µ
L 4	SCV0468-9148	Choke Coil	140 µ

6.2.3 FT Board Ass'y

Symbol No.	Part No.	Part Name	Description
T201	SCV0514-001	Mic. Trans.	
L201	SCV0568-001	Coil	90 μH
L202	SCV0569-001	"	1.3 mH
CN 8	SCV0514-006	Post Header	
CN 9	" -003	"	
CN10	" -004	"	
C201	QCF41HZ-104	C Cap	0.1 50 V
C202	" -104	"	0.1 "
C203	QET41ER-476	E Cap	47 25 V

6.2.4 CN Board Ass'y

Symbol No.	Part No.	Part Name	Description
Q401	2SA1022(B)	Transistor	
Q402	2SC2295(B)	"	
Q403	"	"	
Q404	"	"	
D401	MA152A	Si. Diode	
C401	QCF41HZ-104	C Cap	0.1 50 V
C402	QEE41CM-475	T Cap	4.7 16 V
CN11	SS30644-004	Post Header	
CN12	" -005	"	
CN13	" -007	"	
CN14	SCV0342-001	Connector	

6.2.5 IT Board Ass'y

Symbol No.	Part No.	Part Name	Description
Q301	2SA684(R)	Transistor	
C301	QET41ER-106	E Cap	10 25 V
D301	MA26W	Si. Diode	
R304	SCV0515-202	VR	2 kΩ
CN 7	SCV0515-004	Post Header	

No. 6372

JVC Service Manual

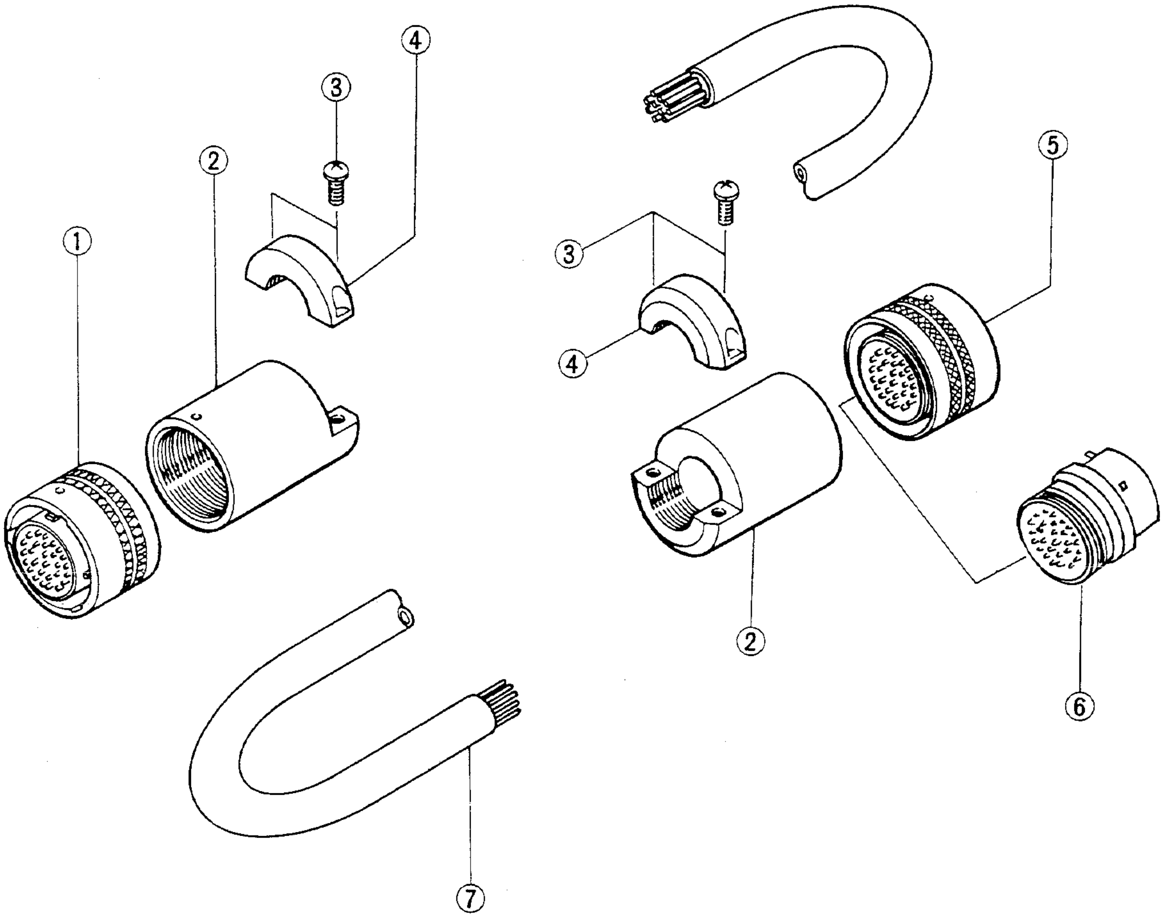
CAMERA CABLE

MODEL VC-544/545

NOTE: Camera cables of VC-544/545 have molded connectors on both ends.
The list on the following pages are custom made products.
Allow additional delivery schedule for the parts order.

1. VC-544/VC-545 SPECIAL PARTS (Custom order)

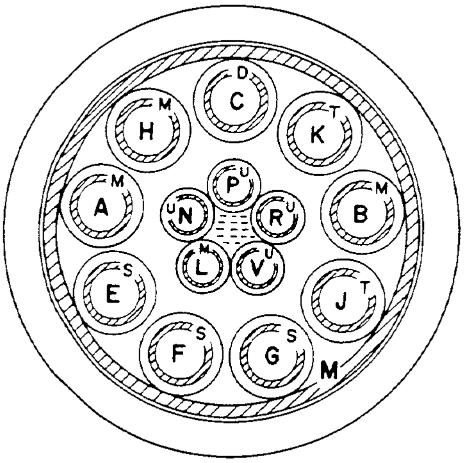
NOTE: Allow additional delivery time for those special parts.



Symbol No.	Parts No.	Parts Name	Description
1	SCV0449-19P	Connector	RS-500 Main Unit, KPT06E14-19P (CANNON)
2	SC41249-011	Protector	
3	LPSP2610Z	Screw	
4	SC41249-021	Wire Clamp	
5	SCV0449-19S	Connector	Camera Adaptor, KPT06E14-19S (CANNON)
6	SCV0450-19S	"	Extender only, KPT01E14-19S (CANNON)
※ 7	SCV0578-200	Cable	20 m
※ 8	SCV0578-□□□	"	70 m—700, 120 m—121, 170 m—171, 220 m—221, 270 m—271, 320 m—321

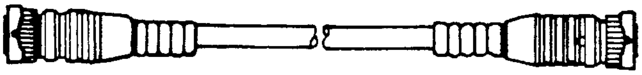
※ **NOTE:** Total length between RS-500 and Camera Adaptor must be specified length on the "CABLE" of RS-500 panel.

2. VC-544/VC-545 (19PIN—19PIN)



TO
CAMERA ADAPTER

TO
RS-500

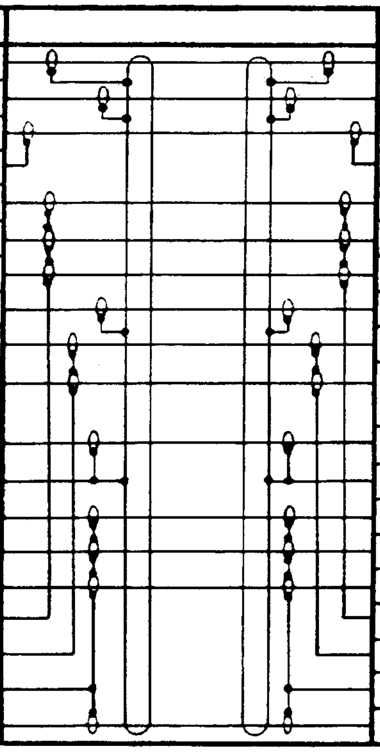


(Female) VC-544 (Male)

TO
VC-544

TO
RS-500

(Female) VC-545 (Male)

PIN NO.		PIN NO.	SIGNAL	WIRE COLOR
A		A	0 V DC	White
B		B	+ 140 V DC	Black
C		C	Compsite Video	Grey/Black
D		D	Shield	
E		E	Blue video	Grey/Green
F		F	Green "	Grey/Yellow
G		G	Red "	Grey/Orange
H		H	Command signal	Grey
J		J	Genlock "	Grey/Red
K		K	Aux video	Grey/Brown
L		L	H-Phase control	Orange
M		M	Shield	
N		N	Intercom M (Mic.)	White
P		P	" E (Ear.)	Black
R		R	Audio H	Brown
S		S	Shield (Video)	
T		T	" (")	
U		U	" (Audio)	
V		V	Audio C	Red